

# **1993 WADE COAL FIRE #1 / AYERS SHAFT / BLM ADIT PROJECT**

**DSL - AMRB No. 93-006**

## **FINAL REPORT**

**Musselshell and Fergus Counties, Montana**



**December 22nd, 1993**

**SPECTRUM ENGINEERING**

**Billings, Montana**



dec:  
JUN 8 1994

## **FINAL REPORT**

### **1993 WADE COAL FIRE #1/ AYERS SHAFT/BLM ADIT PROJECT DSL - AMRB No. 93-006**

**Sites Located in Musselshell and Fergus Counties**

**Wade Coal Fire #1  
Ayers Shaft  
BLM Adit**

**Square Deal (Extra Site)**

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**December 22nd, 1993**

**Spectrum Engineering  
1413 4th Avenue North  
Billings, MT 59101**

PLATE 1





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# 1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT

## 1. INTRODUCTION

### 1.1 Project Description

The 1993 Wade Coal Fire #1/Ayers Shaft/BLM Adit project originally consisted of 3 project sites located in Musselshell and Fergus Counties. One additional site was added called Square Deal Mine in Musselshell County. The need for this project was to protect human health and safety caused by dangerous openings and burning coal.

The work consisted of salvaging and replacing topsoil; closing mine openings; excavating and extinguishing burning coal; and revegetating disturbed areas. The Contractor was also required to secure a MPDES Storm Water Discharge Permit to cover all sites.

#### 1.1.1 Location and Access

##### Wade Coal Fire #1.

The Wade Coal Fire #1 is located in the E $\frac{1}{2}$ E $\frac{1}{2}$  of Section 9 and the W $\frac{1}{2}$ W $\frac{1}{2}$  of Section 10, T6N, R28E in Musselshell County. The latitude is 46° 17.2' and the longitude is 108° 12.9'. The site is found on the USGS 7  $\frac{1}{2}$  minute quadrangle named Cherry Spring.

The site is located approximately 50 miles north of Billings. Access to the site is by traveling north from Billings along Highway 87 approximately 32 miles, turning right (east) on the paved Divide Coal Road (northern location where it intersects Highway 87) for approximately 2 miles, turning left (north) onto a gravel road (Fattig Creek Road) and then travel 9 miles passing the Brown Ranch. Turn right (east) through a locked gate onto an unimproved road for approximately 6 $\frac{1}{2}$  miles to the site.

##### Ayers Shaft.

The Ayers Shaft is located in the SW $\frac{1}{4}$  of Section 10, and the NW $\frac{1}{4}$  of Section 15, T15N, R22E in Fergus County. The latitude is 47° 4.2' and the longitude is 108° 54.9'. The site is found on the USGS 7 $\frac{1}{2}$  minute quadrangle named Fish Dam.

The site is located approximately 6 miles west-northwest of Grassrange. Access is by traveling to Grassrange. Drive approximately one mile north to the intersection of Highway 87 and Highway 200. Turn left (west) and travel 7 miles to the Ayers Ranch Colony. Turn right (north) into the Colony. Proceed through the Ranch Colony yard on a dirt/gravel road for about 2.5 miles to the site. There is no established road for the last portion of the access. Right before you reach the coulee containing the site you cross a plowed field.



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### **BLM Adit.**

The BLM Adit is located in the SE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$  of Section 8, T15N, R22E in Fergus County. The latitude is 47° 4.5' and the longitude is 108° 57.9'. The site is found on the USGS 7½ minute quadrangle named Fish Dam.

The site is located approximately 2 miles west of the Ayers Shaft. Access is by traveling to Grassrange. Drive approximately one mile north to the intersection of Highway 87 and Highway 200. Turn left (west) and travel 7 miles to the Ayers Ranch Colony. Proceed 1.4 miles past (west) of the colony. Turn right (north) on a good gravel road. There is a sign marking ranch names (Thayer P., Munson B., Pekkola C., Fords Cr. Colony, Fox D., Cripps W.) at the beginning of the road. Travel 1.1 miles north until you reach a "Y" in the road. Take the right hand fork and proceed 0.7 miles (first east and then north again) until you reach the site. The adit is in a rock outcrop 300 feet west of the road on the north side of the small ravine (the only rock outcrop visible).

### **Square Deal Mine.**

The Square Deal Mine was added mid-way through the project. This site is located in the W $\frac{1}{2}$ SW $\frac{1}{4}$  of Section 16, T18N, R25E in Musselshell County. The latitude is 46° 26.7' and the longitude is 108° 36.6'. The site is found on the USGS 7½ minute quadrangle named Roundup.

The site is located approximately 3 miles west of Roundup. Access is by traveling towards Roundup from Billings. Turn left (northwest) on Horsethief Road just prior to reaching the sawmill on the outskirts of Roundup. Drive approximately 2½ miles until you reach the Don Corey residence. The highway is paved all the way past his house. Proceed through his yard to the site.

The reader is referred to the Site and Vicinity Maps shown on the Site Plan sheets for further description of the access to the sites. No 8 ½ x 11 inch site access maps were prepared for these sites.





# 1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT

## 1.1.2 Land Ownership

The land ownership is shown in the following table from Section I of the bid package.

<u>SITE NAME</u>	<u>LOCATION</u>	<u>LANDOWNER/CONTACT</u>
<b><u>MUSSELSHELL COUNTY</u></b>		
Wade Coal Fire #1	W½ of Section 10, T6N, R28E	<b><u>LANDOWNER</u></b> Consol Land Development Co. James D. Sandvig P.O. Box 98 Decker, MT 59025 406-757-2285  <b><u>LESSEE</u></b> Larry Klinger 1117 1 West Roundup, MT 59072 406-323-2579 or 406-323-1690 (shop)
	All of Section 9, T6N, R28E	<b><u>LANDOWNER</u></b> Burlington Northern Railroad c/o Ted Hanks Meridian Minerals Company 5613 DTC Parkway Englewood, CO 80111 303-796-8586
<b><u>FERGUS COUNTY</u></b>		
Ayers Shaft	SW¼ of Section 10, NW¼ of Section 15 all within T15N, R22E	Ayers Ranch Colony John Stahl Jr., President P.O. Box 77 Grassrange, MT 59032 406-428-2362
BLM Adit	SE¼NW¼SW¼ of Section 8, T15N, R22E	Bureau of Land Management David Mari or Scott Haight Judith Resource Area Box 1160 Airport Road Lewistown, MT 59457 406-538-7461
Square Deal	W½SE¼ of Section 16, T8N, R25E	State of Montana Leased to Don Corey 290 Horsethief Road Roundup, MT 59072 406-323-2559



# **1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT**

## **1.1.3 History**

The history on each of these projects is limited. The Wade Coal Fire #1 was ignited by the Hawk Creek Fire which swept through the Bull Mountains in 1983. The coal seam fire was spreading towards the old underground workings of the Wade Coal Mine.

The Ayers Shaft and the BLM Adit were both dug about 25 years ago by local well drillers searching for uranium. They hit coal by accident. Neither of these sites ever amounted to more than small prospects.

The Square Deal Mine was previously reclaimed in 1985 as part of AMRB project IFB 6016-G Bull Mountain Coal Field - Mine Reclamation Construction. The first mining at the Square Deal Mine took place in the early 1920's by Sam Moss. The mine operated seasonally off and on until 1970. Virgil Cross was the last mine operator from 1958 to 1970. A shortwall cutting machine was used to mine the 42 inch thick bottom bench of coal with the workings reached by a slope entry driven into the rock outcrop.

## **1.2 Project Objectives/Site Problems**

This project was needed to protect health and safety caused by dangerous openings and a coal fire. The site problems are described below:

### **1.2.1 Wade Coal Fire #1**

The goal is to excavate, extinguish and bury the burning coal at this site.

The work is to strip and stockpile topsoil from the burning coal disposal pit and the area to be excavated containing the burning coal. Construct a temporary haul road from the disposal pit to the coal fire including a temporary culvert. This road and pit will be field staked by the Engineer. Excavate the disposal pit (estimated size 50' x 50') to a total depth of 4½ feet (1' of topsoil and 3½ of subsoil) segregating the topsoil from the subsoil.

Remove and stockpile the overburden and expose the burning coal segregating the topsoil from the subsoil. Excavate and haul the burning coal to the disposal pit. Place the burning coal within the pit in maximum 6" lifts. It is estimated that there will be five lifts (2½ feet of extinguished coal). Water the burning coal as necessary to extinguish the fire and compact each lift. Place 1 foot of subsoil over the extinguished coal. Alter the size of the pit as necessary. Place 9 inches of topsoil over the subsoil in the pit and contour to match the surrounding topography.

Rebuild the excavated slope using stockpiled subsoil from the excavated area and disposal pit. Place 8 inches of topsoil over this area using topsoil from the excavated slope area and the excess topsoil from the disposal pit. Contour the slope to blend with the surrounding topography.



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Fertilize, seed, and mulch all disturbed areas. Place erosion control mat on the recontoured slope and straw bales for erosion control as shown on the Site Plan sheet and as directed by the Engineer.

## **1.2.2 Ayers Shaft**

The work includes debris removal (dispose of the metal debris in the shaft, the wood debris can be burnt); salvage the hoist pipes and stove and haul to the Ayers Ranch Colony; dispose of a coal slack pile (8 feet wide by 25 feet long by 1½ feet thick) by placing the coal slack in the shaft; and backfill one shaft (10 feet wide by 10 feet long by 60 feet deep). Borrow material is available immediately adjacent to the shaft. Strip and stockpile the topsoil from the borrow area prior to using subsoil for backfill material. After regrading, spread the topsoil evenly over the borrow area and backfilled shaft. All disturbed areas will be revegetated.

## **1.2.3 BLM Adit**

The Contractor will remove and replace a section of fence for access from the county road. A very small amount of debris will be disposed of. Adjacent rock can be used to backfill (20 cy needed) the declining adit (3'H x 4.5'W x 35' + long). There is no topsoil to salvage. All disturbed areas will be revegetated.

## **1.2.4 Square Deal**

This site was change-ordered into the project. The Contractor was requested to excavate 3 potential air shafts, bury a lot of old mine debris, bury a coal slack area, and excavate a subsidence feature in front of a storage garage. All disturbed areas are to be revegetated.

## **2. RESPONSIBLE PARTIES**

### **2.1 Contractor**

The successful low bidder was Baxter Construction. Their address is shown below:

Baxter Construction Company  
4014 Hardin Road  
Billings, Montana 59101  
Phone: 406/259-6404  
MT Contractor's License: 4884 A





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## **2.2 Reclamation and Engineering Plan**

Spectrum Engineering was assigned the responsibility of preparing the reclamation and engineering specifications prior to contractor selection. Plans conforming to the general requirements were formulated in the field to meet specific conditions.

Spectrum's address is shown below:

Spectrum Engineering  
1413 4th Avenue North  
Billings, Montana 59101  
Phone: 406/259-2412

## **2.3 Quality Control Inspection**

Spectrum Engineering performed the quality control inspection. The project engineer was Bill Maehl and the construction inspectors were John Deeney and George Ardelean.

## **2.4 AMRB Coordination**

The AMRB Project Manager was Joel Chavez, Montana Department of State Lands, Abandoned Mine Reclamation Bureau.

## **3. CHRONOLOGICAL LISTING OF EVENTS**

### **3.1 Pre-Bid Conference**

The pre-bid conference was held on August 10th, 1993 at the Klein Revegetation site south of Roundup in conjunction with the Southeast Maintenance Project pre-bid.

### **3.2 Bid Date**

The bid opening date was Friday, August 20th, 1993.

### **3.3 Three Lowest Bids**

There were 3 bidders on this project with bids ranging from \$15,521.00 to \$25,055.00. The engineer's estimate was \$22,745.00. The bid tabulations have been included in ATTACHMENT 1. The three bidders are listed below.

Baxter Construction	Montgomery Const.	Donnes Construction
Billings, Montana	Hilger, Montana	Billings, Montana
\$ 15,521.00	\$ 16,816.00	\$ 25,055.00





# **1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT**

## **3.4 Contract Award/Notice of Award/Notice to Proceed**

The contract was awarded to the low bidder (Baxter Construction) after receiving all of their bonds, stormwater permit, and other required paper-work. The Agreement was dated October 4th, 1993.

The Notice to Proceed was issued October 5th, 1993. Baxter Construction performed all of the work themselves. The work started October 19th at the Wade site and was completed on November 4th at the Ayers site. They used 17 calendar days to complete the work from initial mobilization to final demobilization. A total of 31 calendar days elapsed from the Notice to Proceed until work completion. There were 45 allowed calendar days to complete the work per the bid package.

The prime contractors address is shown under 2.1 Contractor above.

## **3.5 Construction Start-up**

The Contractor started mobilizing his equipment to the Wade site prior to October 19th and moved his last piece of equipment to the site on October 19th, 1993 when he started work.

## **3.6 Change Orders**

There was one change order written for this project. Copies of this change order are included in this report as ATTACHMENT 2. The change order was for final quantity adjustment at all sites, deletion of the BLM Adit site, and addition of the Square Deal Mine site. The net effect of the change order was to add a total of \$7,204.00 to the contract price.

## **3.7 Work Stoppages**

There was one work shut-down due to weather from October 22nd until October 28th.

## **3.8 Requests for Payment**

There was one payment request on this project. Pay Request 1 was for the period from job start through job completion (November 4th). The amount completed for this pay request was \$ 22,725.00 (\$15,521.00 plus the change order amount of \$7,204.00).

## **3.9 Substantial Completion**

The date of Substantial Completion was November 4th, 1993.



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## 3.10 Final Completion and Approval

The AMRB field inspection date was November 8th, 1993. The Final Completion date is one year from the Substantial Completion date or November 4th, 1994.

## 3.11 Final Payment

Final payment was approved on November 22nd, 1993. A copy of the only payment request has been included in ATTACHMENT 3.

## 4. CONSTRUCTION

### 4.1 Description of Project Plan

The objective of the proposed work at the Wade Coal Fire #1 site was to extinguish a burning coal seam fire approaching the open workings of the Wade Coal Mine. The approach was to excavate and haul to a disposal pit all coal which was on fire. The coal would be extinguished with water prior to burial.

The work objective at the Ayers Shaft site was to backfill an open shaft and dispose of debris. The objective at the BLM Adit site was to backfill an inclined adit.

The objective at the Square Deal Mine site was to excavate and determine if 3 potential air shafts had been properly backfilled, dispose of old mine debris, and determine by excavation the extent and cause of a sink hole in front of an old brick mine building.

### 4.2 Major Equipment List

<u>Type</u>	<u>Make/Model</u>	<u>Size/Horsepower</u>	<u>No. on Job</u>
Track loader	John Deere 755	2¼ yd - 152 hp	1
Loader-backhoe	Case 580D	7/8 yd - 55 hp	1

### 4.3 Contractor Employees

Ed and Willie Baxter were the two contractor employees on the job.

### 4.4 Construction Activities

Baxter Construction moved their equipment to the Wade Coal Fire #1 site on October 19th and work began the same day. Baxter started at Wade by digging the disposal pit. The pit location had to be relocated just across the creek from the burning coal. The proposed disposal pit location down stream was too wet to develop access to. The topsoil and subsoil were piled separately. The road was built to the west coal bank. Started hauling coal to the disposal pit with the track loader. Water was pumped from



## **1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT**

the nearby creek for fire extinguishment. All of the burning coal was dug out of the west bank on 10/20/1993. The west bank coal seam burn area was 66 feet long by 10 feet high by 3½ feet into the coal seam. The east bank coal seam fire was more extensive than the west bank. Burning coal was removed from the east bank on 10/20, 10/21, 10/29 and 11/1. Reclamation took place on 11/1 through 11/3/1993. The east bank coal seam burn area was 70 feet long running north-south and 30 feet long running east-west by 10 feet high by 2 to 25 feet into the coal seam. A total of 730 cubic yards of burning coal was excavated and extinguished from both banks of the coulee. There was insufficient backfill material to rebuild the slopes so an additional area part-way up the hill on the north side of the stream was developed for fill material. This area had already partially been disturbed by the old service road leading to the bottom of the coulee. Baxter used 790 square yards of erosion control mat and 6 straw bales to control erosion and cover the rebuild slopes of the fire zone after vegetation had been applied. The total reclaimed area at Wade was reduced to 0.46 acres from the original plan because of the relocation of the coal fire disposal pit closer to the work area. The total working time at Wade was 7 days.

The Contractor mobilized to the Square Deal site on 10/27 and completed all work at this site on 10/28/1993. Three potential air vents or shafts were excavated to determine the need for additional backfilling. No additional work was required and these holes were backfilled and revegetated. The open hole in front of the brick building turned out to be an old cistern or septic tank rather than a mine subsidence hole. This was backfilled and revegetated. One coal slack area was buried and revegetated and a large amount of old mine debris was buried in two different pits dug for this purpose. These areas were revegetated.

The Contractor moved his reclamation equipment to the Ayers Shaft site on 11/4/1993 and completed the site in one day. He had the Ayers Ranch Colony people fill the hole using their earthmoving equipment.

### **4.5 Quantities Used**

The administration of the contract was fairly straight-forward. No disputes were raised by the Contractor about the estimated quantities being wrong.





## 1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT

<u>Item</u>	<u>Amount</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Mobilization	3. sites	\$1550.00/site	\$4,650.00
Provide Water	14.6 K gals	30.00/K gal	438.00
Debris Removal	1. L.S.	900.00/L.S.	900.00
Close Mine Openings (110 CY)	1. each	600.00/each	600.00
Coal Slack Disposal	15. yards	3.00/yard	45.00
Salvage and Replace Cover Soil	190. yards	3.00/yard	570.00
Excavate Wade Coal Fire Disposal Pit	325. yards	2.00/yard	650.00
Excavate OB over Fire	144. yards	12.50/yard	1800.00
Excavate Burning Coal	730. yards	9.00/yard	6570.00
Rebuild Excavated Slope	510. yards	5.00/yard	2550.00
Cover Disposal Pit	85. yards	2.00/yard	170.00
Fertilize, Seed & Mulch	0.75 acres	1500.00/acre	1125.00
Erosion Control Blanket	790. sq yds	2.75/sq yd	2172.50
Straw Bales for Erosion Control	6. bales	5.75/bale	34.50
Excavate Air Shafts	9. hours	50.00/hour	<u>450.00</u>
All Tasks			\$22,725.00

### 5. PAYMENT REQUESTS

#### 5.1 Pay Request

One pay request was processed for this project as addressed under Section 3.10 above. A copy of this pay request has been included in ATTACHMENT 3.

#### 5.2 Cost per Site

<u>Site Name</u>	<u>Disturbed Acres</u>	<u>Cost/Acre</u>	<u>Total Project Cost</u>
Wade Coal Fire #1	0.46	\$ 41,195.65	\$ 18,950.00
Ayers Shaft	0.12	19,333.33	2,320.00
BLM Adit	Dropped	Dropped	Dropped
Square Deal	<u>0.17</u>	<u>8,558.82</u>	<u>1,455.00</u>
Total	0.75	\$ 30,300.00	\$ 22,725.00





# **1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT**

## **5.3 Total Project Cost**

The original bid was \$15,521.00 and one change order was issued for \$7,204.00 bringing the total construction cost to \$22,725.00. The total engineering and construction management cost for the project was \$23,153.44. An analysis of the engineering costs versus construction costs is presented in ATTACHMENT 4.

## **6. PROJECT SUMMARY**

### **6.1 Summary of Project**

The project went as scheduled with few modifications. The only changes necessary were due to additional coal fire at Wade and the addition of the Square Deal Mine site.

Baxter Construction completed the project in the allowable contract time using 17 of the 45 days available.

### **6.2 Site Condition after Completion**

All work looked good and followed specifications. Baxter Construction, the Contractor, did a good job on this small project.

### **6.3 Maintenance or Follow-up**

The Wade Coal Fire #1, Ayers Shaft and Square Deal sites should require little to no maintenance. The Wade site should be rechecked to assure that erosion is not taking place on the steep side slopes of the small coulee which contained the coal fire.

### **6.4 Bid Package (Construction) Drawings**

The bid package contained three Site Plan sheets covering the work at the three sites. These are located in ATTACHMENT 5 at the back of the final report. These plans represent the reclamation engineering design (the plans from which the contractors bid the work).

### **6.5 As-Built Drawings**

The original Site Plan sheets were modified to reflect as-built final reclamation construction. These are the same plans presented right before the photographs. Since each of these sites was small, there was no need to present a complete set of pre- and post-construction drawings. The Square Deal site was change-ordered into the project with an as-built drawing included.



# **1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT**

## **7. COMMENTS/SUGGESTIONS**

Without any exploratory drilling, it was difficult to estimate the actual extent of the fire. We over-estimated the quantity of burning coal on the west bank. The east bank turned out to be on fire also which added to the quantity. Not drilling proved to be the least expensive alternative.

One site had to be dropped (BLM Adit) because the BLM (landowner) failed to give consent prior to project completion. This adit is dangerous and should be closed by the BLM. The final work product accomplished all the proposed objectives.

## **8. PHOTOGRAPHS/SLIDES**

### **8.1 Listing**

The description of the photographs taken to document the work performed is found at the back of the final report under ATTACHMENT 5. Each picture is numbered on the front and has a generic label on the back. Following the photo descriptions are the photos themselves. The two bound final reports contain photographs and the unbound report contains only photocopies of the photo sheets (instead of slides) per the AMRB Project Manager.

### **8.2 Photo Location Maps**

The location where the photos were taken and their orientation are shown on the as-built plan sheets located in ATTACHMENT 5 at the back of the report.

### **8.3 Photos/Slides**

The photographic documentation of the project includes only print film per the AMRB Project Manager.

A sequence of photographs documenting the construction activities begins immediately following the photo location maps at the back of the report.



# **ATTACHMENT 1**

## **BID TABULATIONS**



1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT  
Musselshell and Fergus Counties, Montana

DSL/AMRB 93-006  
August 20, 1993

BID TABULATIONS				ENGINEER'S ESTIMATE		BAXTER CONSTRUCTION CO.	MONTGOMERY CONSTRUCTION		DONNES CONSTRUCTION	
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price					
1.	1	LS	Mobilization	XXXX	0.00			0.00		0.00
	1		Wade Coal Fire #1	5000.00	5,000.00	3500.00	3000.00	3,500.00	1000.00	1,000.00
	1		Ayers Shaft	1000.00	1,000.00	1000.00	200.00	1,000.00	5000.00	5,000.00
	1		BLM Adit	1000.00	1,000.00	500.00	100.00	500.00	2000.00	2,000.00
2.	18.3	KGAL	Provide water at Wade Coal Fire #1	50	915.00	30.00	20.00	549.00	100.00	1,830.00
3.	1	LS	Debris Removal	XXXX	0.00	0.00	0.00	0.00	0.00	0.00
	1		Ayers Shaft	450.00	450.00	300.00	50.00	300.00	300.00	300.00
	1		BLM Adit	50.00	50.00	100.00	10.00	100.00	300.00	300.00
4.	2	LS	Close Mine Opening	XXXX	0.00	.00	0.00	0.00	0.00	0.00
	1		Ayers Shaft	2000.00	2,000.00	600.00	450.00	600.00	500.00	500.00
	1		BLM Adit	2000.00	2,000.00	100.00	50.00	100.00	200.00	200.00
5.	1	LS	Waste (Coal Slack) Disposal at Ayers Shaft	100.00	100.00	45.00	300.00	45.00	300.00	300.00
6.	1	LS	Salvage and replace cover soil	XXXX	0.00	0.00	0.00	0.00	0.00	0.00
	1	LS	Wade Coal Fire #1	250.00	250.00	375.00	800.00	375.00	300.00	300.00
	1	LS	Ayers Shaft	150.00	150.00	195.00	200.00	195.00	300.00	300.00
7.	1	LS	Excavate disposal pit for burning coal at Wade Coal Fire #1	1000.00	1,000.00	650.00	2800.00	650.00	1500.00	1,500.00
8.	1	LS	Excavate overburden over burning coal at Wade Coal Fire #1	250.00	250.00	1125.00	4200.00	1,125.00	2700.00	2,700.00
9.	240	CY	Excavate and extinguish burning coal at Wade Coal Fire #1	15	3,600.00	9.00	4.00	2,160.00	20.00	4,800.00
					17,765.00			11,199.00		21,030.00





1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT  
Musselshell and Fergus Counties, MONTANA

DSL/AMRB 93-006  
DATE August 20, 1993

BID TABULATIONS				ENGINEER'S ESTIMATE		BAXTER CONSTRUCTION CO.		MONTGOMERY CONSTRUCTION		DONNES CONSTRUCTION	
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price						
10.	1	LS	Rebuild excavated slope with stockpiled subsoil at Wade Coal Fire #1	2000.00	2,000.00	1650.00	1,650.00	400.00	400.00	1000.00	1,000.00
11.	1	LS	Cover disposal pit with stockpiled subsoil at Wade Coal Fire #1	250.00	250.00	170.00	170.00	300.00	300.00	500.00	500.00
12.	0.82	Ac	Fertilize, seed and mulch	0.00	0.00	0.00	0.00	0	0.00		0.00
	0.60	Ac	Wade Coal Fire #1	1500.00	900.00	1500.00	900.00	1500.00	900.00	1000.00	600.00
	0.12	Ac	Ayers Shaft	1500.00	180.00	1500.00	180.00	2000.00	240.00	5000.00	600.00
	0.10	Ac	BLM Adit	1500.00	150.00	1500.00	150.00		20.00	5000.00	500.00
13.	450	Sq. Yd.	Erosion Control Blanket at Wade Coal Fire #1	3.00	1,350.00	2.75	1,237.50	3.00	1,350.00	.50	225.00
14.	6	EA	Straw bales for erosion control at Wade Coal Fire #1	25.00	150.00	5.75	34.50	20.00	120.00	100.00	600.00
					4,980.00		4,322.00		3,330.00		4,025.00

TOTAL PRICE: \$22,745.00

\$15,521.00

\$16,816.00

\$25,055.00



## **ATTACHMENT 2**

### **CHANGE ORDERS**



# CHANGE ORDER

ORDER NO. 1

PROJECT TITLE: 1993 Wade Coal Fire #1/Ayers Shaft/BLM Adit Project

MONT A/E or DSL-AMRB: 93-006

CONTRACT DATE: October 4th, 1993

OWNER: Department of State Lands, Abandoned Mine Reclamation Bureau

CONTRACTOR: Baxter Construction Company

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
1.	Delete BLM Adit site due to lack of landowner consent Bid Item Number 1. Mobilization 3. Debris Removal 4. Close Mine Opening 12. Fertilize, Seed and Mulch-0.1 ac					(-500) (-100) (-100) (-150)	(-500.00) (-100.00) (-100.00) (-150.00)
2.	Provide Water for Extinguishing Coal Fire (Bid Item Number 2) 3.7 KGal less used @ \$30/KGal					(-111)	(-111.00)
3.	Excavate Overburden Over Burning Coal at Wade (Bid Item # 8) 54 cubic yards extra x \$12.50/CY					675	675.00
4.	Excavate and Extinguish Burning Coal at Wade (Bid Item #9) 490 extra cubic yards @ \$9/CY					4,410	4,410.00
5.	Rebuild Excavated slope with Stockpiled Subsoil at Wade (Bid Item Number 10) 180 extra cubic yards @\$5/CY					900	900.00
6.	Fertilize, Seed & Mulch (Bid Item 12) 0.14 less acres seeded at Wade 0.17 acres added at Square Deal					45	45.00
7.	Erosion Control Blanket (Bid Item 13) 340 more square yards used at Wade					935	935.00
8.	Add Square Deal Mine (new Item) Excavate 2 potential air vents & subsidence hole (9 hrs backhoe @ \$50/hr) Mobilization/Demob \$150 (\$75+\$75) Debris disposal (\$600) Revegetation of 0.17 acres (see item 6)					450 150 600	450.00 150.00 600.00
TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.							7,204.00
OVERHEAD & PROFIT @ _____%							INC.
GRAND TOTAL - THIS CHANGE ORDER							\$ 7,204.00

Original Contract Price	\$ 15,521.00
Current Contract Price Adjusted by Previous Change Order	\$ 15,521.00
Cost this Change Order (+ or -)	+ \$ 7,204.00
New Contract Price including this Change Order	\$ 22,725.00



The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by 0 calendar days.

The date for completion of all work was 11/04/1993.

**Description and Justification for Change:**

1. BLM Adit site was dropped from the bid package when the BLM failed to give consent. Bid items were under mobilization (\$500), debris removal (\$100), close mine openings (\$100), & revegetate (\$150).
2. Less water was required to extinguishing coal at Wade (14,600 gallons actually used).
3. Excavate overburden over burning coal at Wade. This increased because both sides of the draw was on fire. The original bid was \$12.50/CY for the 90 cubic yards. The extra yardage of 54 CY x \$12.50/CY comes to \$675.
4. Excavate and extinguish burning coal at Wade. A total of 200 cubic yards were dug out of the west bank (original estimate was 240 CY) and 530 CY were dug out of the east bank. A total of 490 extra cubic yards were extinguished (730-240) at an extra cost of \$4,410 (490 CY x \$9/CY).
5. Rebuild excavated slope with stockpiled subsoil at Wade. A total of 510 CY were used to rebuild the east and west banks (original bid estimate was 330 CY). The extra cost is \$900 (180 CY x \$5/CY bid).
6. Less area was disturbed at Wade by moving the coal burial pit closer to the fire source. A total of 0.14 acres less were revegetated. This decreased the cost \$210 (0.14 ac x \$1500/ac).
7. Both banks of the coulee at Wade required erosion control blanket. This increased the square yards to 790 from the estimate of 450. This increased the cost \$935 (340 sq yds x \$2.75/sq yd).
8. The Square Deal site just outside of roundup was added. Three potential air vents were excavated and a subsidence hole was excavated (9 hrs of backhoe @ \$50/hour) plus 1½ hours of mob and demob of backhoe and dump truck at \$150 (\$75+\$75). A considerable amount of debris was gathered and buried (\$600). All areas plus several coal slack areas were revegetated (0.17 acres @ \$1500/ac).

**SURETY CONSENT**

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by \$\_\_\_\_\_ (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by \$\_\_\_\_\_ (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA  
RESIDENT AGENT

SURETY

\_\_\_\_\_  
\_\_\_\_\_

By: \_\_\_\_\_  
Seal

Recommended by: Spectrum Engineering  
Engineer Date

Accepted by: Baxter Construction Company  
Contractor Date

Approved by: \_\_\_\_\_  
Owner Date





## **ATTACHMENT 3**

### **PAYMENT REQUESTS**



**PAYMENT REQUEST NO. 1- FINAL**

FROM 10/04/1993 TO 11/05/1993

PROJECT TITLE: 1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT

LOCATION: MUSSELSHELL AND FERGUS CO. MONT A/E or DSL-AMRB: 93-006

NAME OF CONTRACTOR: BAXTER CONSTRUCTION COMPANY

ADDRESS: 4014 HARDIN ROAD, BILLINGS, MT 59101

## SUMMARY OF PROJECT STATUS

Amount of Original Contract \$ 15,521.00

Change Order No. 1 \$ 7,204.00

Change Order No. \_\_\_\_\_ \$ \_\_\_\_\_

Change Order No. \_\_\_\_\_ \$ \_\_\_\_\_

Amount of Approved Change Order(s)	\$ 7,204.00
------------------------------------	-------------

<b>TOTAL CONTRACT AMOUNT</b>	<b>\$ 22,725.00</b>
------------------------------	---------------------

Pay Request No.	Amount of Request
1	\$22,725.00

Total Contract Amount Completed to Date	\$ 22,725.00
---	--------------

Less Retainage ( <u>0</u> %)	\$ 0.00
------------------------------	---------

TOTAL AMOUNT EARNED TO DATE	\$ 22,725.00
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Less Previous Payments	\$ 0.00
------------------------	---------

AMOUNT DUE THIS PAYMENT	\$ 22,725.00
-------------------------	--------------

Less 1% Tax	\$ 227.25
-------------	-----------

TOTAL DUE CONTRACTOR	\$ 22,497.75
----------------------	--------------

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

BAXTER CONSTRUCTION COMPANY  
Contractor

By CL Hines

Date 11-8-92

RECOMMENDED BY:

SPECTRUM ENGINEERING

Engineer

By H. Klam (Hacker)

Date 11/8/93

APPROVED BY:

DEPARTMENT OF STATE LANDS, ABANDONED  
MINE RECLAMATION BUREAU

Owner

By \_\_\_\_\_

Date \_\_\_\_\_

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed to Date	Total Contract Amount Completed to Date	Amount Due this Payment
1.	Mobilization	1 LS	5000.00	0	0.90	0.90	4500.00	4500.00
2.	Provide Water	18.3 Kgal	30.00	0	14.6	14.6	438.00	438.00
3.	Debris Removal	1 LS	400.00	0	0.75	0.75	300.00	300.00
4.	Close Mine Openings	1 LS	700.00	0	0.86	0.86	600.00	600.00
5.	Waste Disposal at Ayers	1 LS	45.00	0	1	1	45.00	45.00
6.	Salvage & Replace Coversoil	1 LS	570.00	0	1	1	570.00	570.00
7.	Excavate disposal pit for coal	1 LS	650.00	0	1	1	650.00	650.00
8.	Excavate overburden over coal	1 LS	1125.00	0	1.6	1.6	1800.00	1800.00
9.	Excavate burning coal	240 CY	9.00	0	730	730	6570.00	6570.00
10.	Rebuild slope	1 LS	1650.00	0	1.55	1.55	2550.00	2550.00
11.	Cover disposal pit	1 LS	170.00	0	1	1	170.00	170.00
12.	Fertilize, Seed and Mulch	0.82 Acres	1500.00	0	0.75	0.75	1125.00	1125.00
13.	Erosion blanket	450 sq yd	2.75	0	790	790	2172.50	2172.50
14.	Straw bales	6 each	5.75	0	6	6	34.50	34.50
15.	Change Order Add Square Deal	1 LS	1200.00	0	1	1200	1200.00	1200.00
	Materials on Site (Attach Schedule)	--	--	\$	\$	--	\$0.00	\$0.00
<b>TOTALS</b>							<b>\$22,725.00</b>	<b>\$22,725.00</b>

## **ATTACHMENT 4**

### **ANALYSIS OF CONSULTANT COSTS INCURRED**



ANALYSIS OF CONSULTANT COSTS INCURRED  
FOR THE MONTANA DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU

AMR PROJECT NUMBER: DSL-AMRB 93-006  
1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT

DATE OF PREPARATION: DECEMBER 22, 1993

ENGINEERING SERVICE	AMOUNT
DESIGN ENGINEERING:	\$12,459.69
CONSTRUCTION ENGINEERING AND PROJECT ADMINISTRATION COST:	\$10,693.75
TOTAL PROJECT ENGINEERING COST:	\$23,153.44
CONSTRUCTION COST:	\$22,725.00
PERCENTAGE ENGINEERING FEES TO CONSTRUCTION COST:	
DESIGN ENGINEERING/CONSTRUCTION COST	54.83%
CONSTRUCTION ENGINEERING/CONSTRUCTION COST	47.06%
TOTAL ENGINEERING COST/CONSTRUCTION COST	101.89%

REMARKS: Services provided included landowner contact and consent, surveying, basic engineering and reclamation design, bid document preparation, pre-bid and pre-construction meetings, construction staking, contract administration, quantity accounting, full time construction/reclamation inspection and final report preparation and project close-out.





**ATTACHMENT 5**

**AS-BUILT DRAWINGS**

**AND**

**PHOTO LOCATIONS**





① PICTURE 1 IS A HELICOPTER VIEW OF THE DRAW CONTAINING THE CDAL FIRE LOOKING SOUTHEAST.



② PICTURE 2 IS A VIEW OF THE ENTRANCE TO THE DRAW WITH THE COAL FIRE LOOKING SOUTH.



③ PICTURE 3 SHOWS THE CDAL FIRE LOOKING SOUTHEAST



④ PICTURE 4 IS AN AERIAL PHOTO SHOWING THE CDAL FIRE LOCATION, ACCESS ROUTE AND THE BURNING CDAL DISPOSAL PIT LOCATION.

ACTUAL QUANTITIES  
0.46 Acres revegetated  
790 sq yds. erosion control mat

FIRE ZONE EXCAVATION  
EAST BANK  
70' L x 30' W x 10' H x 2' - 25' Deep  
WEST BANK  
60' L x 10' W x 3.5' Deep

LEGEND  
--- 3990 --- CONTOUR  
--- DRAINAGE  
② PICTURE NUMBER AND ORIENTATION  
○ ESTIMATED BURN AREA AT TOPOGRAPHIC SURFACE

STORM WATER POLLUTION PREVENTION AND EROSION CONTROL PLAN  
BEST MANAGEMENT PRACTICES FOR STORM WATER CONTROL

The Owner is the Department of State Lands, Reclamation Division Abandoned Mine Reclamation Bureau, 1625 11th Avenue Helena Montana 59620 at telephone 1-444-2074. The project manager is Joel Chavez.

The construction activity is described in the Work Description. This project is estimated to disturb and reclaim 0.6 acres during project construction. This site is located in E 1/4 Sec 9 and the W 1/4 Sec 10, T6N R28E, Musselshell County.

The estimated time period will be ten days from the start of on-site reclamation construction until the site is permanently fertilized, seeded and mulched (long term erosion controls are installed). This is the time from site arrival until demobilization (weather dependant).

A haul road will be located in an intermittent drainage and this haul road will cross a small stream. This small stream eventually flows into Cowgulf Creek which flows into Railroad Creek which flows into the Yellowstone River.

Best Management Practices (BMP's) during construction to control sediment and erosion in storm runoff include: Temporary stabilization practices - dust abatement by watering as required and installing a culvert in stream; installing straw bale dikes; erosion control blankets; and mulching of entire disturbed area following seeding and fertilizing and Permanent stabilization practices - seeding and fertilizing (100% revegetation of the site).

Good housekeeping for petroleum products, wastes, fertilizer and off-site tracking will be followed by the contractor as outlined by the MPDES Storm Water discharge permit erosion control plan.

#### ARCHAEOLOGICAL NOTICE

ANY KNOWN ARCHAEOLOGICAL MATERIALS NEAR THE CONSTRUCTION AREAS WILL BE MARKED BY THE OWNER. AT NO TIME SHALL THESE ARCHAEOLOGICAL MATERIALS BE DISTURBED WITHOUT THE WRITTEN PERMISSION FROM THE OWNER.

ADDITIONAL INFORMATION PERTAINING TO THESE SITES MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

REDUCED PRINTS ARE APPROX  
1/2 ORIGINAL SCALE

Vertical Datum Based On Interpolation Of USGS 7 1/2' Quadrangle CHERRY SPRING, MT Topography Prepared From Ground Survey Conducted In 1993 By Spectrum Engineering Using A Total Station. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

#### HAZARD NOTICE

MANY POTENTIAL HAZARDS EXIST AT THIS SITE. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN.

THE CONTRACTOR, SUBCONTRACTORS AND THEIR EMPLOYEES WILL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS IN THE PERFORMANCE OF THE REQUIRED WORK. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITES SHALL BE FULLY RESPONSIBLE FOR APPRISING THEMSELVES OF ANY HAZARDOUS CONDITIONS WHICH MAY EXIST AND SHALL TAKE WHATEVER STEPS ARE NECESSARY TO INSURE THEIR SAFETY AND THE SAFETY OF OTHERS WHILE PERFORMING THEIR DUTIES.

#### ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THE WORK SHOWN ON THESE MAPS AND PLANS WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION.

William C. Maehl  
WILLIAM C. MAEHL  
MONTANA P.E. NO. 5274PE

UPPER COAL DISPOSAL PIT  
30' x 80'

LOWER COAL DISPOSAL PIT  
120' x 115'

EXTINGUISH BURNING COAL  
AND PLACE SUBSOIL OVER  
EXTINGUISHED COAL

SEED, FERTILIZE AND  
MULCH ROAD UP TO  
DISPOSAL PIT

INSTALL TEMPORARY  
12" CMP CULVERT

SEED, FERTILIZE AND  
PLACE EROSION  
CONTROL BLANKET

PLACE STRAW BALES  
FOR EROSION CONTROL

SALVAGE AND  
REPLACE TOPSOIL

WEST BANK OF BURNING COAL AREA

EXCAVATE OVERBURDEN,  
REMOVE BURNING COAL AND  
REBUILD SLOPE SMOOTH

ESTIMATED TOP OF CUT FOR  
BURNING COAL EXCAVATION

BURNING  
COAL  
AREA

PLACED EROSION  
CONTROL MAT

EAST BANK OF BURNING COAL AREA

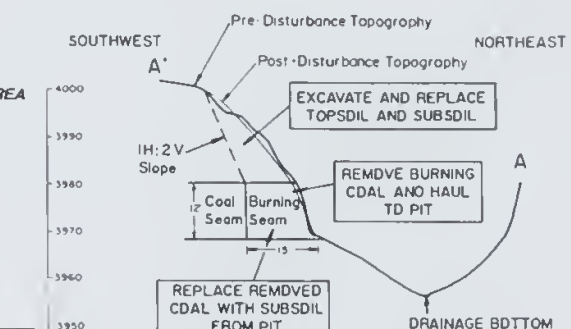
CUT ROAD AND RECONTOUR  
DRAINAGE BOTTOM  
FOLLOWING RECLAMATION

BURNING COAL DISPOSAL PIT PLAN  
(see Photo 4 and Site Location Map)

SALVAGE AND  
REPLACE TOPSOIL

SEED, FERTILIZE  
AND MULCH

EXCAVATE 50' x 50'  
DISPOSAL PIT



COAL FIRE CROSS SECTION

#### WORK DESCRIPTION

Clear and grub as necessary. Strip and stockpile topsoil from the disposal pit and the area to be excavated containing the burning coal. Excavate the disposal pit (estimated size 50' x 50') to a total depth of 4 1/2 feet (1' of topsoil and 3 1/2' of subsoil). This pit will be field staked by the Engineer.

Blade a road (field staked by the Engineer) from the disposal pit to the coal fire. Blade the topsoil to the sides of the road. Install a temporary 12" CMP culvert.

Remove and stockpile the overburden and expose the burning coal segregating the topsoil from the subsoil. Excavate the burning coal. Haul the burning coal to the disposal pit and place within the pit in maximum 6' lifts. Water the burning coal as necessary to extinguish the coal and compact each lift. Place 1 foot of subsoil over the extinguished coal. Alter the size of the pit as necessary. Place 9 inches of topsoil over the subsoil in the pit and contour to match the surrounding topography.

Rebuild the excavated slope using stockpiled subsoil from the excavated slope area and the excess subsoil from the disposal pit. Place 8 inches of topsoil over this area from the excavated slope area and the excess topsoil from the disposal pit. Contour the slope to blend with the surrounding topography.

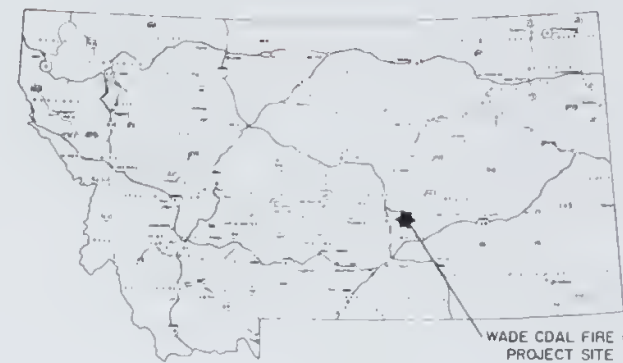
Recontour the haul road to match pre-construction topography. Replace the topsoil for this area (previously bladed to the side of the road).

Fertilize, seed, and mulch all disturbed areas (estimated at 0.60 acres). Place 450 square yards of erosion control mat and 6 straw bales as shown and as directed by the Engineer.

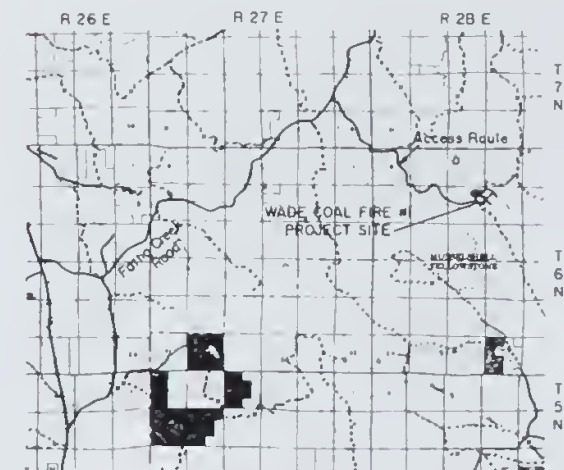
LANDOWNER - ALL OF SEC. 9  
Burkington Northern Railroad  
C/O Ted Hanks  
Meridian Minerals Company  
5613 DTC Parkway  
Englewood CO 80111  
303-796-8586

LANDOWNER - W 1/4 OF SEC. 10  
Consolidated Development Co  
James D. Sandvig  
P.O. Box 98  
Decker, MT 59025  
406-757-2285

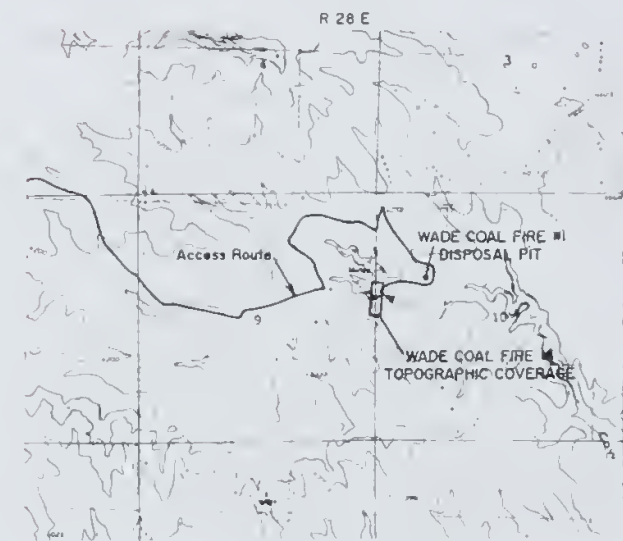
CONTACT FOR LOCKED GATE  
Larry Klingler (Lessee)  
1117 1 West  
Roundup, MT 59072  
406-323-2579



STATE LOCATION MAP



VICINITY ACCESS MAP  
SCALE 1" = 1 MILE  
DLN MAP, ROUNDUP 26



SITE LOCATION MAP  
SCALE 1" = 1 MILE  
CME-REY SPRING, MT 7-112-0035

1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT  
MONT DSL-AMRB 93-006

#### SITE PLAN AND GENERAL LAYOUT

WADE COAL FIRE #1 SITE  
SECTIONS 9 & 10, T6N, R28E  
MUSSELHELL COUNTY, MONTANA

STATE OF MONTANA, DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION  
1625 Eleventh Avenue, Helena, Montana 59620

SPECTRUM ENGINEERING  
Mining and Civil Engineers

1413 4th Avenue North  
Billings, Montana 59101  
Phone 406-259-2412

DATE May 1993  
DRAWN BY LNR  
APPROVED BY  
REVISIONS  
NO. DATE BY  
1 28 APR 93 JAC  
SHEET NO. 1 of 3

AS-BUILT DRAWING







① PICTURE 1 IS A HELICOPTER VIEW OF THE DRAW CONTAINING THE COAL FIRE LOOKING SOUTHEAST.



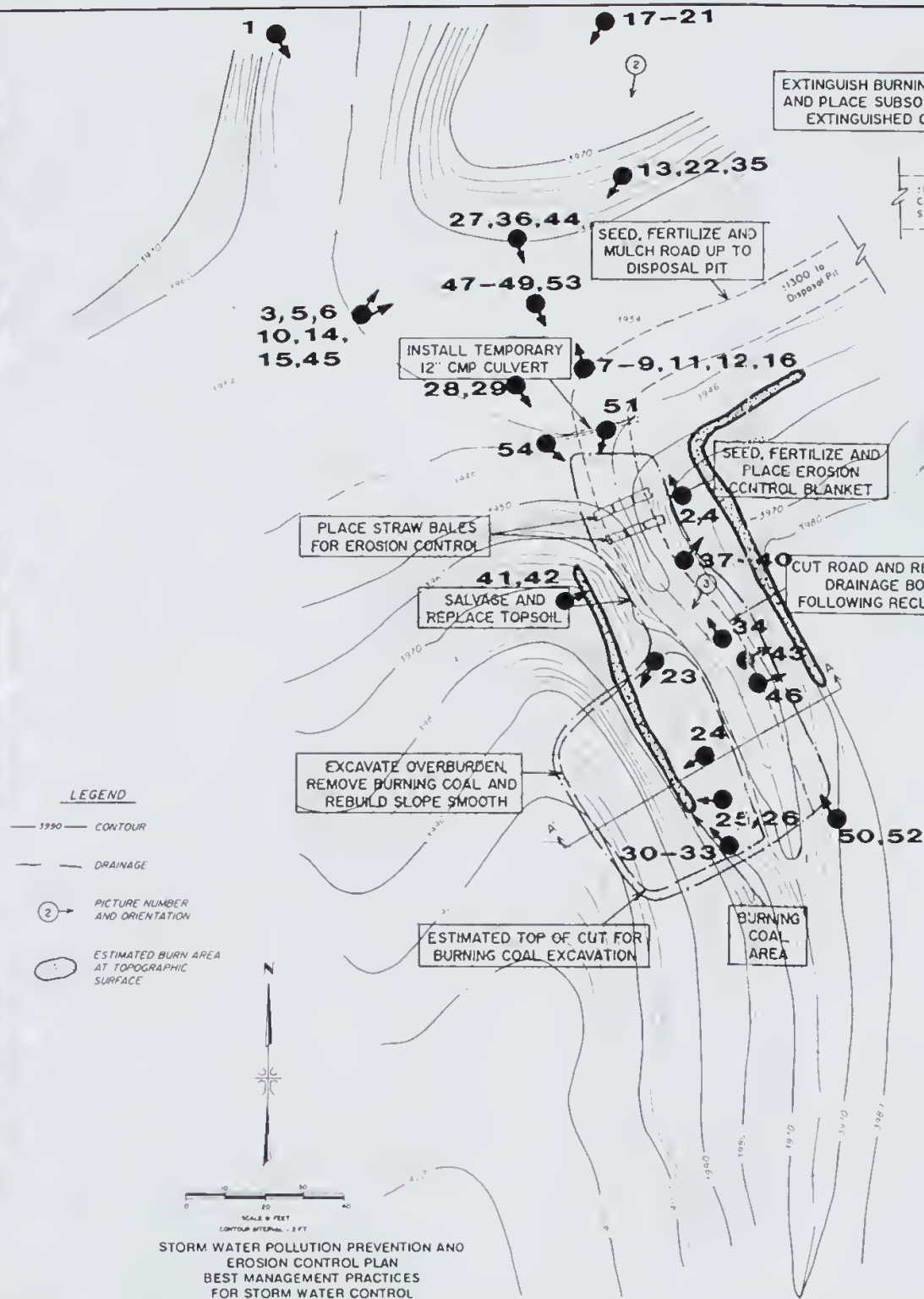
② PICTURE 2 IS A VIEW OF THE ENTRANCE TO THE DRAW WITH THE COAL FIRE LOOKING SOUTH.



③ PICTURE 3 SHOWS THE COAL FIRE LOOKING SOUTHEAST



④ PICTURE 4 IS AN AERIAL PHOTO SHOWING THE COAL FIRE LOCATION, ACCESS ROUTE AND THE BURNING COAL DISPOSAL PIT LOCATION.



**LEGEND**

— 1990 — CONTOUR

— DRAINAGE

② PICTURE NUMBER AND ORIENTATION

○ ESTIMATED BURN AREA AT TOPOGRAPHIC SURFACE

STORM WATER POLLUTION PREVENTION AND EROSION CONTROL PLAN  
BEST MANAGEMENT PRACTICES  
FOR STORM WATER CONTROL

The Owner is the Department of State Lands Reclamation Division, Abandoned Mine Reclamation Bureau 1625 11th Avenue Helena Montana 59620 at telephone 1-444-2074. The project manager is Joel Chavez

The construction activity is described in the Work Description. This project is estimated to disturb and reclaim 0.6 acres during project construction. This site is located in E 1/4 Sec 9 and the W 1/4 Sec 10 T6N R28E Musselshell County

The estimated time period will be ten days from the start of on-site reclamation construction until the site is permanently fertilized, seeded and mulched (long term erosion controls are installed). This is the time from site arrival until demobilization (weather dependant)

A haul road will be located in an intermittent drainage and this haul road will cross a small stream. This small stream eventually flows into Cowgulin Creek which flows into Railroad Creek which flows into the Yellowstone River

Best Management Practices (BMP's) during construction to control sediment and erosion in storm runoff include: Temporary stabilization practices - dust abatement by watering as required and installing a culvert in stream, installing straw bale dikes, erosion control blankets and mulching of entire disturbed area following seeding and fertilizing and Permanent stabilization practices - seeding and fertilizing (100% revegetation of the site).

Good housekeeping for petroleum products - wastes, fertilizer and off-site tracking will be followed by the contractor as outlined by the MPDES Storm Water discharge permit erosion control plan

## CONSTRUCTION PHOTOS

### ARCHAEOLOGICAL NOTICE

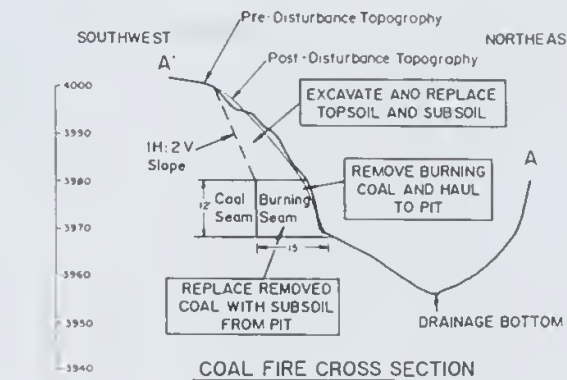
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REDUCED PRINTS ARE APPROX  
1/2 ORIGINAL SCALE

Vertical Datum Based On Interpolation Of USGS 7 1/2 Quadrangle CHERRY SPRING MT Topography Prepared From Ground Survey Conducted In 1993 By Spectrum Engineering Using A Total Station. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

### BURNING COAL DISPOSAL PIT PLAN (see Photo 4 and Site Location Map)



### WORK DESCRIPTION

Clear and grub as necessary. Strip and stockpile topsoil from the disposal pit and the area to be excavated containing the burning coal. Excavate the disposal pit (estimated size 50' x 50') to a total depth of 4 1/2 feet (1' of topsoil and 3 1/2' of subsoil). This pit will be field staked by the Engineer.

Blade a road (field staked by the Engineer) from the disposal pit to the coal fire. Blade the topsoil to the sides of the road. Install a temporary 12" CMP culvert.

Remove and stockpile the overburden and expose the burning coal segregating the topsoil from the subsoil. Excavate the burning coal. Haul the burning coal to the disposal pit and place within the pit in maximum 6' lifts. Water the burning coal as necessary to extinguish the coal and compact each lift. Place 1 foot of subsoil over the extinguished coal. Alter the size of the pit as necessary. Place 9 inches of topsoil over the subsoil in the pit and contour to match the surrounding topography.

Rebuild the excavated slope using stockpiled subsoil from the excavated slope area and the excess subsoil from the disposal pit. Place 8 inches of topsoil over this area from the excavated slope area and the excess topsoil from the disposal pit. Contour the slope to blend with the surrounding topography.

Recontour the haul road to match pre-construction topography. Replace the topsoil for this area (previously bladed to the side of the road).

Fertilize, seed, and mulch all disturbed areas (estimated at 0.60 acres). Place 450 square yards of erosion control mat and 6 straw bales as shown and as directed by the Engineer.

**LANDOWNER - ALL OF SEC. 9**  
Burlington Northern Railroad  
C/O Ted Hanks  
Meridian Minerals Company  
5613 DTC Parkway  
Englewood CO 80111  
303-796-8586

**LANDOWNER - W 1/4 OF SEC. 10**  
Consolidated Development Co  
James O. Sandvig  
P.O. Box 98  
Decker MT 59025  
406-757-2285

**CONTACT FOR LOCKED GATE**  
Larry Klingler (Lessee)  
1117 1 West  
Roundup MT 59072  
406-323-2579

### HAZARD NOTICE

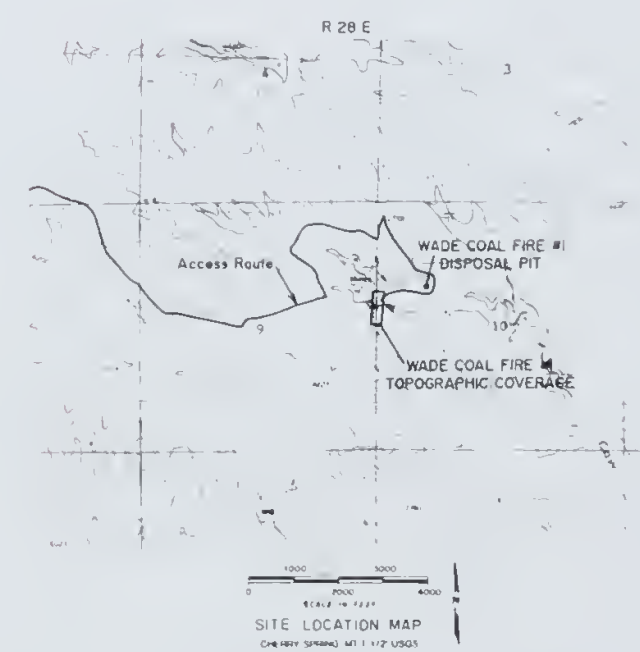
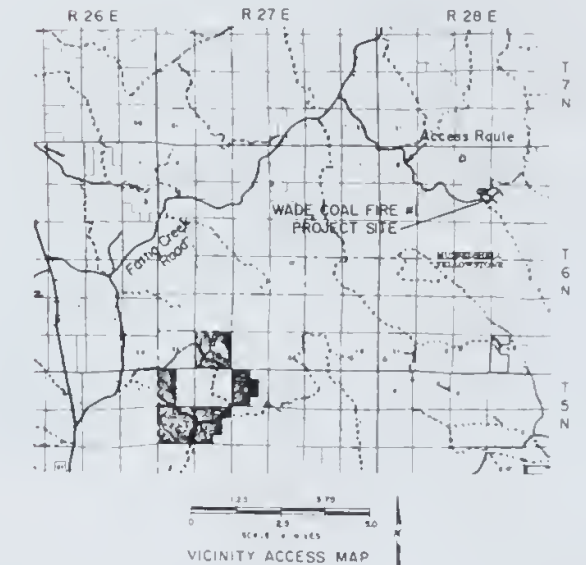
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### ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THE WORK SHOWN ON THESE MAPS AND PLANS WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION.

*William C. Maehl*  
WILLIAM C. MAEHL  
MONTANA P.E. NO. 5274PE



1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT  
MONT DSL-AMRB 93-006

### SITE PLAN AND GENERAL LAYOUT

#### WADE COAL FIRE #1 SITE

SECTIONS 9 & 10, T6N, R28E  
MUSSELHELL COUNTY, MONTANA

STATE OF MONTANA, DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION  
1625 Eleventh Avenue, Helena, Montana 59620

### SPECTRUM ENGINEERING

Mining and Civil Engineers

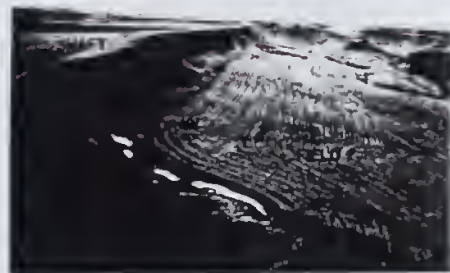
1413 4th Avenue North  
Billings, Montana 59101  
Phone 406-259-2412

DATE	11/2/93
DRAWN BY	W.C.M.
APPROVED BY	
NO.	DATE
BY	
SHEET NO.	1 of 3

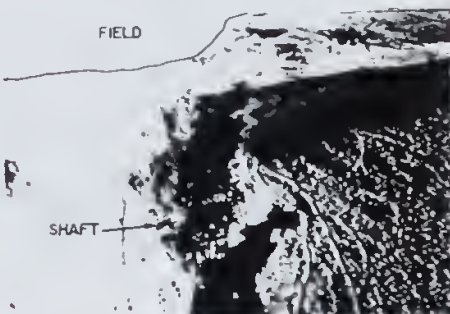
## PHOTO INDEX







① PICTURE 1 IS A HELICOPTER VIEW OF THE ENTRANCE TO THE DRAW CONTAINING THE SHAFT LOOKING SOUTHWEST.



② PICTURE 2 IS A HELICOPTER VIEW OF THE SHAFT LOOKING NORTH.



③ PICTURE 3 IS A VIEW OF THE DEBRIS AND SHAFT COLLAR LOOKING WEST.

ADDITIONAL INFORMATION PERTAINING TO THESE SITES MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

REDUCED PRINTS ARE APPROX  
1/2 ORIGINAL SCALE

#### STORM WATER POLLUTION PREVENTION AND EROSION CONTROL PLAN BEST MANAGEMENT PRACTICES FOR STORM WATER CONTROL

The Owner is the Department of State Lands, Reclamation Division, Abandoned Mine Reclamation Bureau, 1625 11th Avenue Helena, Montana 59620 at telephone 1-444-2074. The project manager is Joel Chavez.

The construction activity is described in the Work Description. This project is estimated to disturb and reclaim 0.12 acres during project construction. This site is located in the SW 1/4 of Sec. 10 and the NW 1/4 of Sec. 15, T15N R22E, Fergus County.

The estimated time period will be two days from the start of on-site reclamation construction until the site is permanently fertilized, seeded and mulched (long term erosion controls are installed). This is the time from site arrival until demobilization (weather dependant).

This site is located approximately 1/5 mile from a small stream which flows into Chippewa Creek, which flows into McDonald Creek which flows into the Musselshell River.

Best Management Practices (BMP's) during construction to control sediment and erosion in storm runoff include: Temporary stabilization practices - mulching of entire disturbed area after seeding and fertilizing, and Permanent stabilization practices - seeding and fertilizing (100% revegetation of the site).

Good housekeeping for petroleum products, wastes, fertilizer and off-site tracking will be followed by the contractor as outlined by the MPDES Storm Water discharge permit erosion control plan.

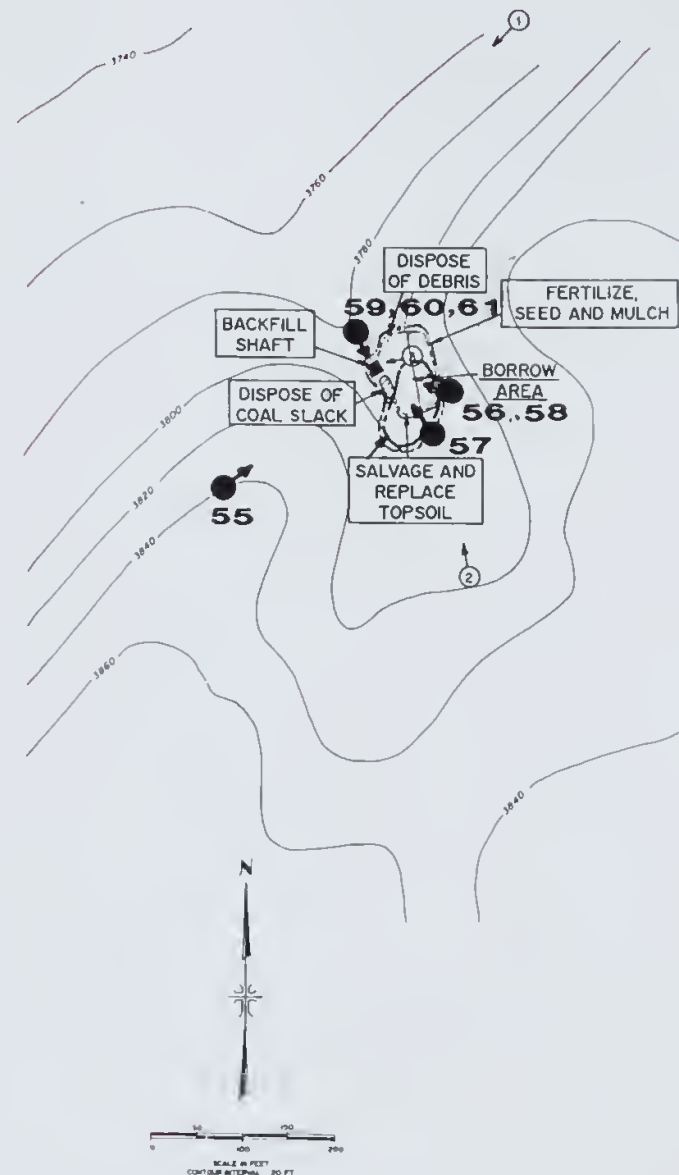
#### WORK DESCRIPTION

- Dispose of all debris at the site;
- Salvage the large holst pipes and old stove and haul down to Ayers Colony;
- Dispose of the coal slack pile by placing in the mine shaft;
- Backfill the mine shaft using borrow material adjacent to the shaft. The topsoil must be excavated and stockpiled and the subsoil will be used to backfill the shaft;
- Contour the borrow site and backfilled shaft to blend with the surrounding topography;
- Place the stockpiled topsoil over the borrow area and backfilling shaft; and,
- Fertilize, seed, and mulch all disturbed areas.

#### ARCHAEOLOGICAL NOTICE

ANY KNOWN ARCHAEOLOGICAL MATERIALS NEAR THE CONSTRUCTION AREAS WILL BE MARKED BY THE OWNER. AT NO TIME SHALL THESE ARCHAEOLOGICAL MATERIALS BE DISTURBED WITHOUT THE WRITTEN PERMISSION FROM THE OWNER.

Topography Based On USGS 7 1/2' Quadrangle FISH DAM, MT. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.



#### LANDOWNER CONTACT

Ayers Ranch Colony  
John Stahl, Jr., President  
P.O. Box 77  
Grassrange, MT 59032  
406-428-2362

#### LEGEND

3840 CONTOUR

COAL SLACK

SHAFT

PICTURE NUMBER AND ORIENTATION

CONSTRUCTION PHOTOS

#### HAZARD NOTICE

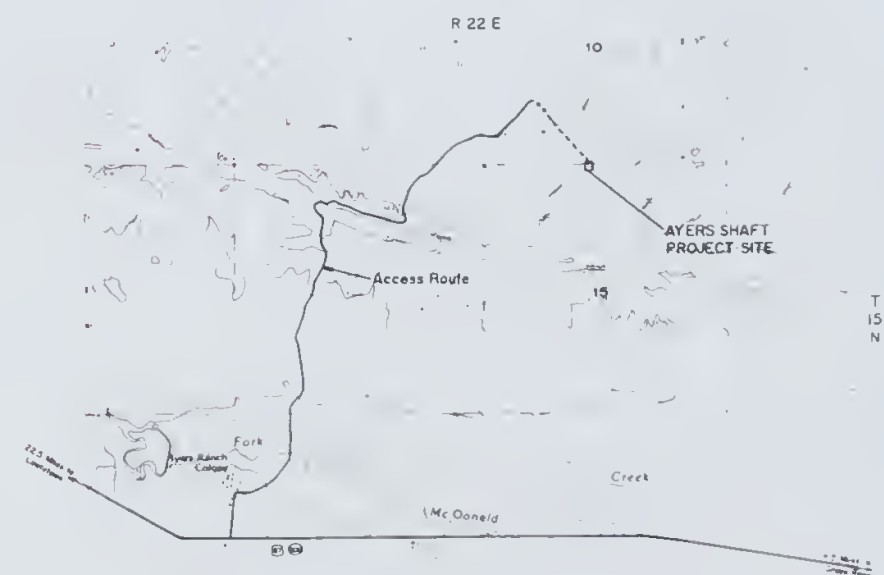
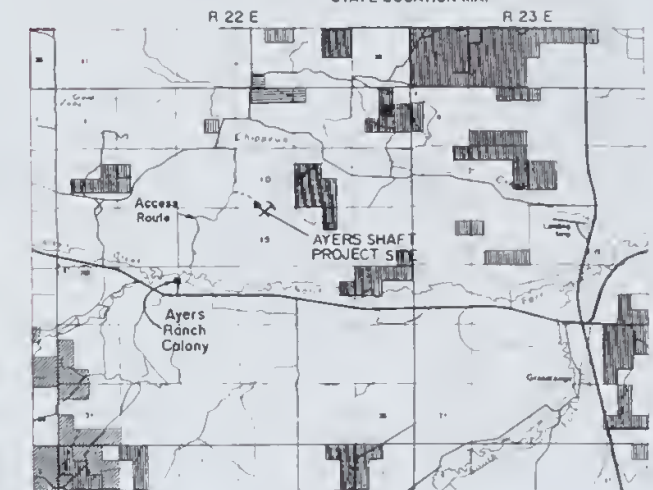
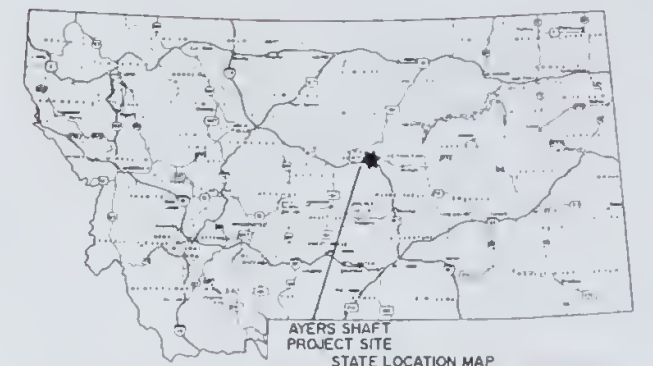
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*William C. Maehl*  
WILLIAM C. MAEHL  
MONTANA P.E. NO. 5274PE



1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT  
MONT DSL-AMRB 93-006

#### SITE PLAN AND GENERAL LAYOUT

AYERS SHAFT SITE  
SECTIONS 10 & 15, T15N, R22E  
FERGUS COUNTY, MONTANA

STATE OF MONTANA, DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION  
1625 ELEVENTH AVENUE, HELENA, MONTANA 59620

SPECTRUM ENGINEERING  
Mining and Civil Engineers  
1413 4th Avenue North  
Billings, Montana 59101  
Phone 406-259-2412

DATE: May 10, 2003  
DRAWN BY: J. VIK  
APPROVED BY: [Signature]  
REVISIONS: [Table]  
SHEET NO. 2 OF 3

AS-BUILT DRAWING  
AND PHOTO INDEX





**STORM WATER POLLUTION PREVENTION AND  
EROSION CONTROL PLAN  
BEST MANAGEMENT PRACTICES  
FOR STORM WATER CONTROL**

The Owner is the Department of State Lands, Reclamation Division, Abandoned Mine Reclamation Bureau, 1625 11th Avenue, Helena, Montana 59620 at telephone 1-444-2074. The project manager is Joel Chavez.

The construction activity is described in the Work Description. This project is estimated to disturb and reclaim 0.1 acres during project construction. This site is located in the NW1/4SW1/4 of Section 8, T15N, R22E, Fergus County.

The estimated time period will be one day from the start of on-site reclamation construction until the site is permanently fertilized, seeded and mulched (long term erosion controls are installed). This is the time from site arrival until demobilization (weather dependant).

This site is located in an unnamed drainage 0.9 miles from Chippewa Creek, which flows into McDonald Creek which flows into the Musselshell River.

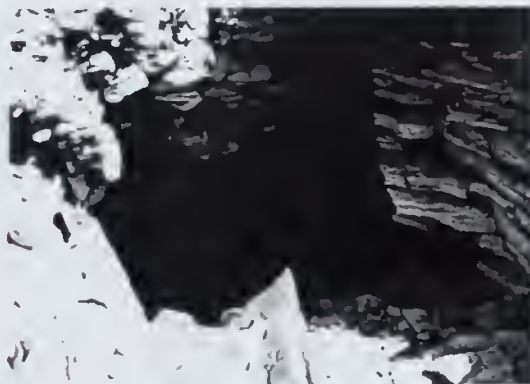
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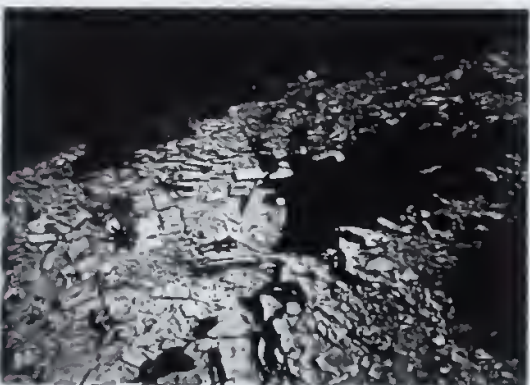
Vertical Datum and Topography Based On USGS 7 1/2' Quadrangle FISH DAM, MT. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.



PICTURE ① IS A VIEW TAKEN FROM THE COUNTY ROAD LOOKING NORTHWEST AT ROCK OUTCROP CONTAINING THE ADIT.



PICTURE ② IS A VIEW LOOKING NORTHEAST AT ADIT OPENING.



PICTURE ③ IS A VIEW LOOKING NORTHWEST AT ADIT OPENING.

**WORK DESCRIPTION**

- Temporarily remove 1 section of fence to gain access;
- Dispose of all debris at the site;
- Backfill the declined mine adit using adjacent rock outcrop material (20 cubic yards). No topsoil will be disturbed or salvaged;
- Contour the backfilled adit to blend with the surrounding topography;
- Replace the section of fence removed to gain access; and,
- Fertilize, seed, and mulch all disturbed areas (0.1 acres).

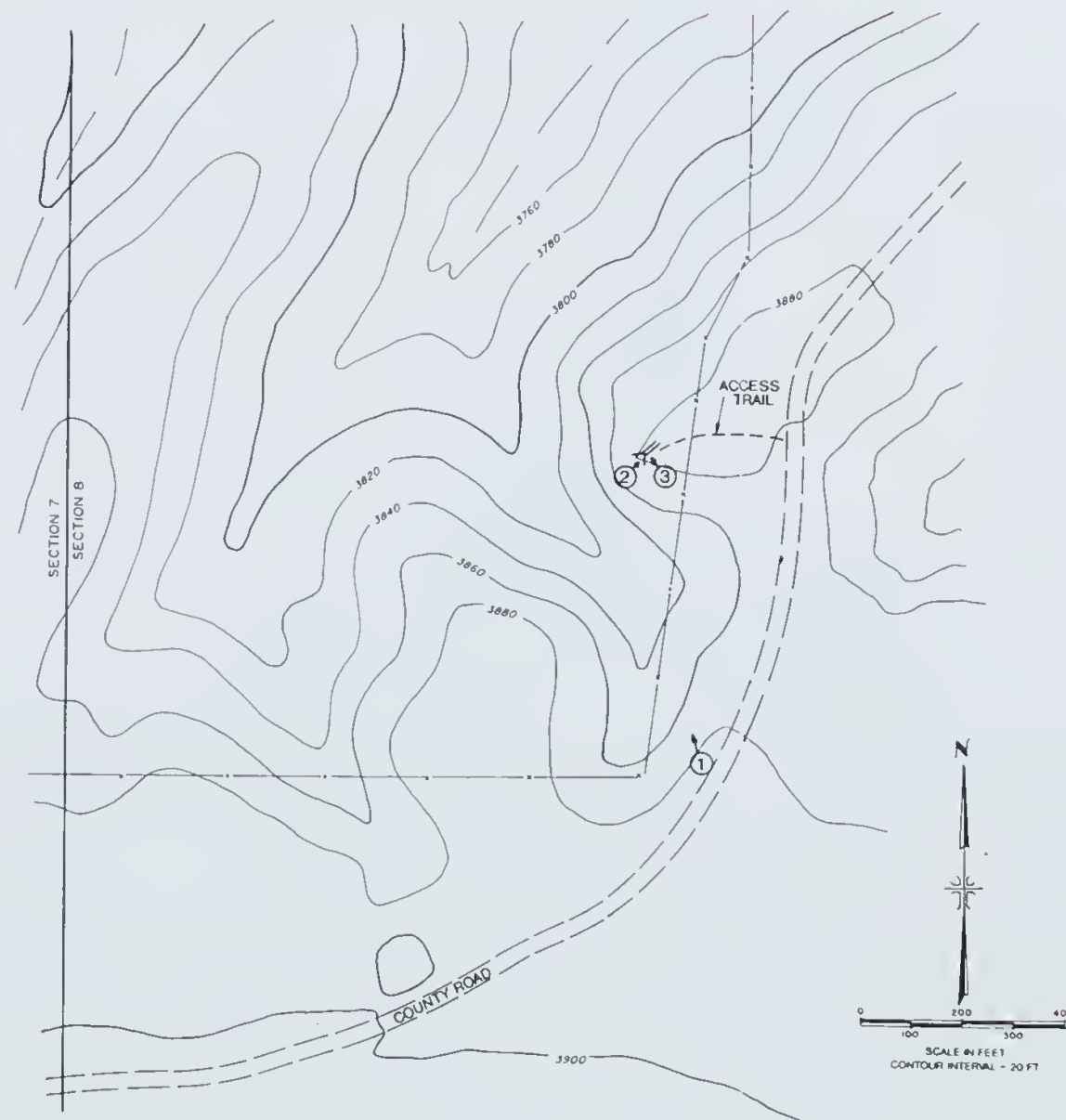
**HAZARD NOTICE**

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**ARCHAEOLOGICAL NOTICE**

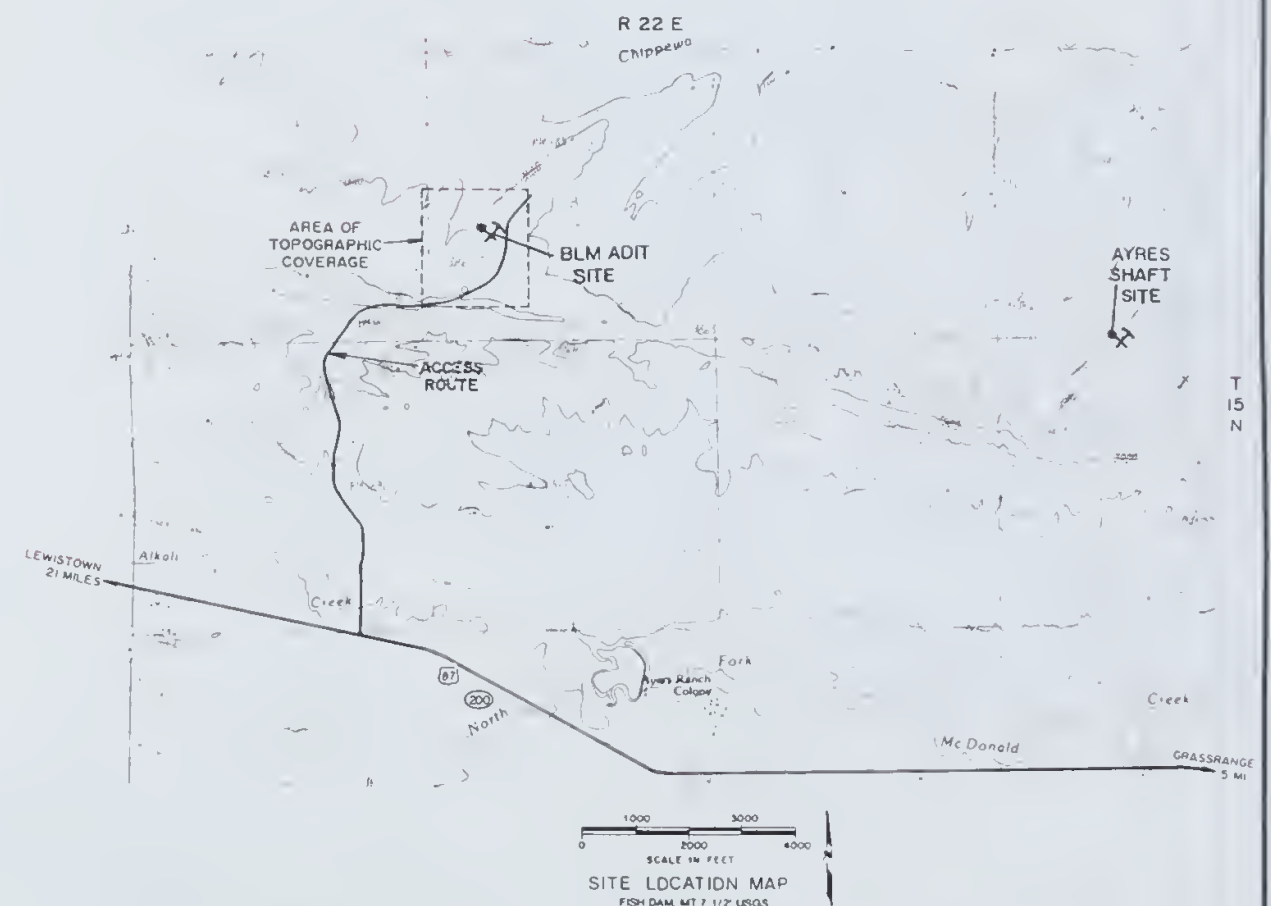
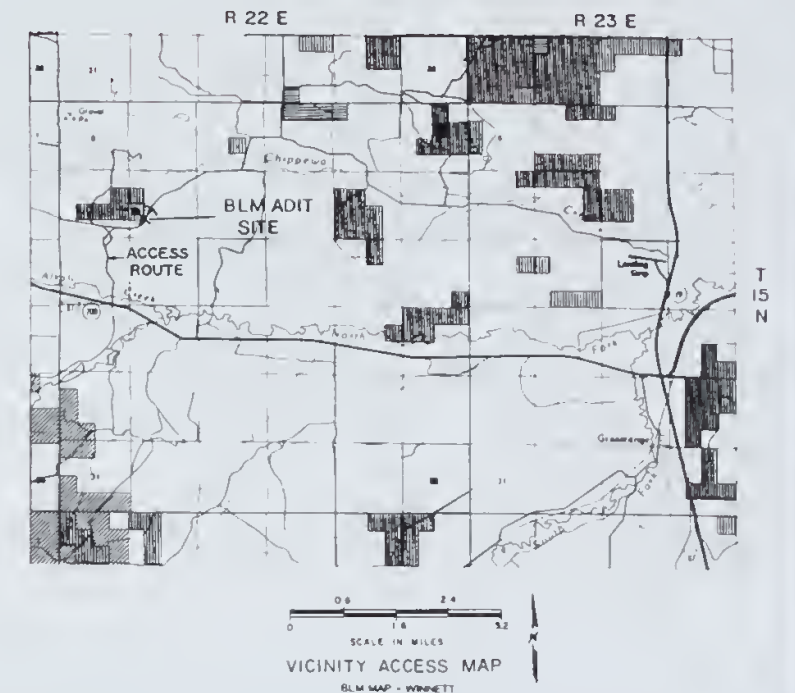
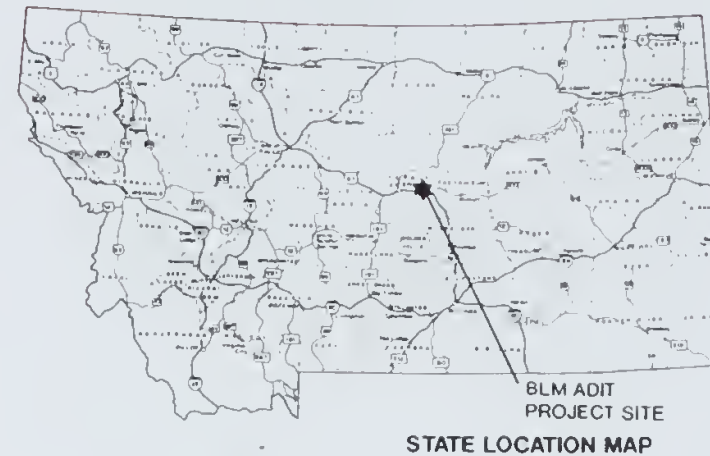
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**LEGEND**

3760 — CONTOUR  
— DRAINAGE

① — PICTURE NUMBER AND ORIENTATION  
— FENCE  
X — OPEN ADIT



**LANDOWNER CONTACT**

Bureau of Land Management  
David Mori or Scott Haight  
Judith Resource Area  
Box 1160  
Airport Road  
Lewistown, MT 59457  
406-538-7461

**ENGINEER'S CERTIFICATE**

I HEREBY CERTIFY THAT THE WORK SHOWN ON THESE MAPS AND PLANS WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION.

*William C. Maehl*  
WILLIAM C. MAEHL  
MONTANA P.E. NO. 5274 PE

REDUCED PRINTS ARE APPROX  
1/2 ORIGINAL SCALE

**SITE PLAN AND GENERAL LAYOUT**

**BLM ADIT SITE**  
SECTION 8, T15N-R22E  
FERGUS COUNTY, MONTANA

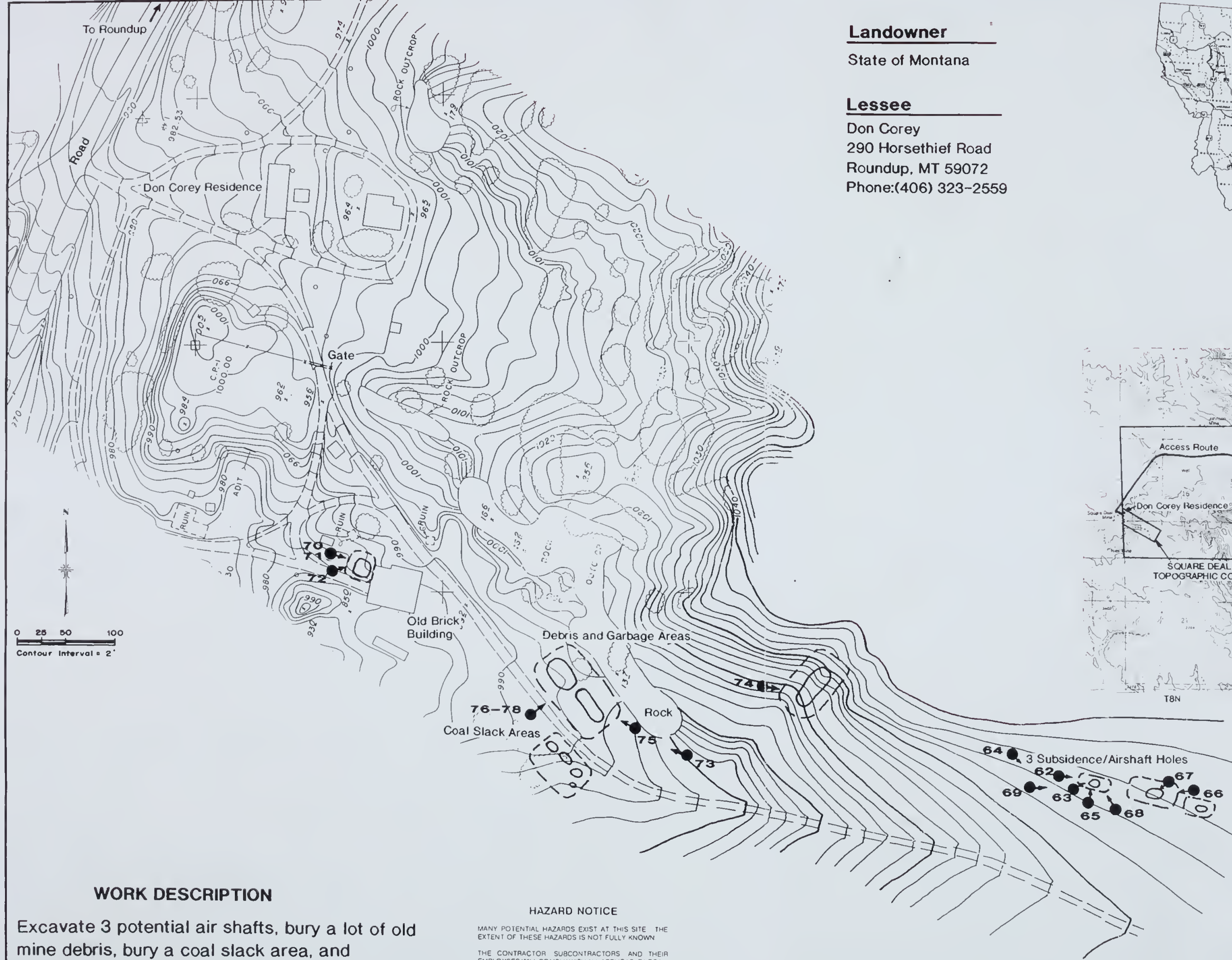
STATE OF MONTANA, DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION  
1625 Eleventh Avenue, Helena, Montana 59620

**SPECTRUM ENGINEERING**  
Mining and Civil Engineers  
1413 4th Avenue North  
Billings, Montana 59101  
Phone 406-259-2412

DATE JULY 1993  
DRAWN BY RMS  
APPROVED BY WM  
REVISIONS  
NO. DATE BY  
SHEET NO. 3 of 3

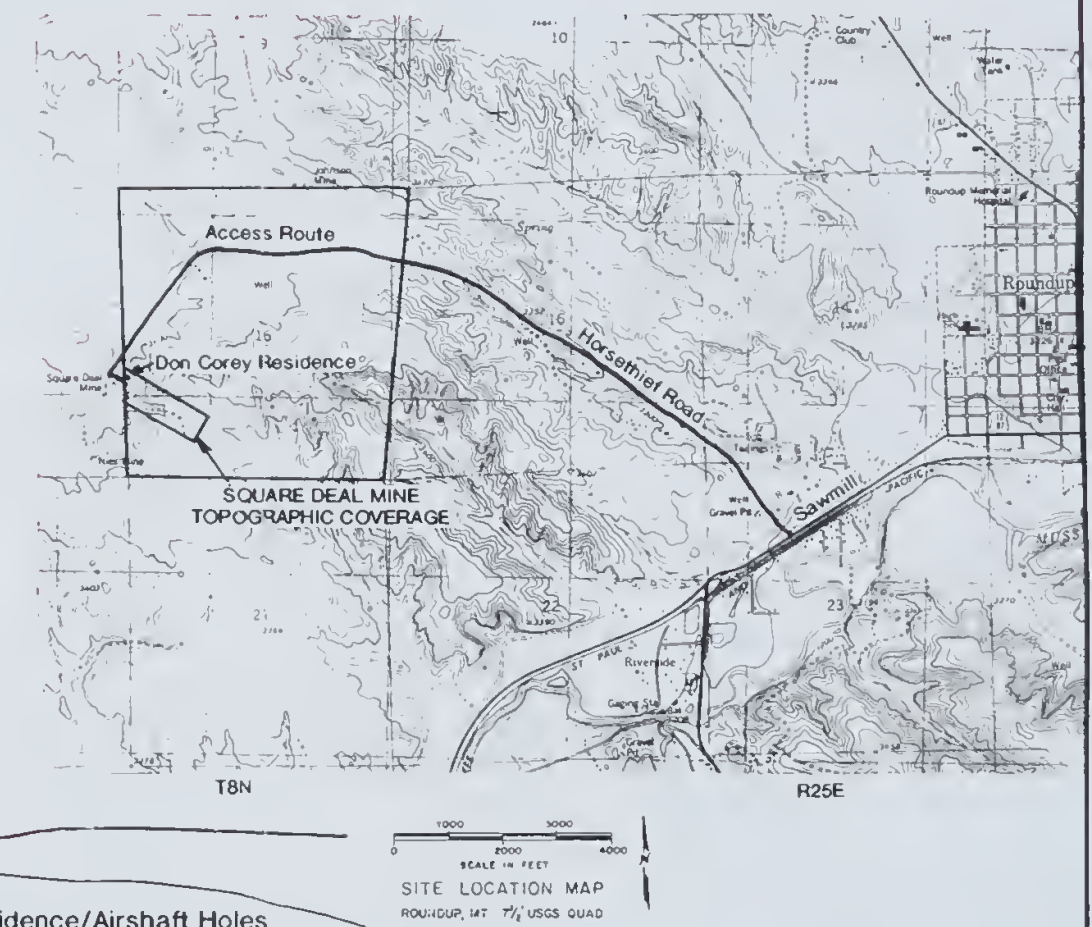






**Landowner**  
State of Montana

**Lessee**  
Don Corey  
290 Horsethief Road  
Roundup, MT 59072  
Phone:(406) 323-2559



**WORK DESCRIPTION**

Excavate 3 potential air shafts, bury a lot of old mine debris, bury a coal slack area, and excavate a subsidence feature in front of a storage garage. All disturbed areas to be revegetated.

**HAZARD NOTICE**

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**AS-BUILT DRAWING  
AND PHOTO INDEX**

1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT MONT DSL-AMRB 93-006	
SITE PLAN AND GENERAL LAYOUT	
SQUARE DEAL MINE SITE SECTION 18, T8N, R25E MUSSELSHELL COUNTY, MONTANA	
STATE OF MONTANA, DEPARTMENT OF STATE LANDS ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION 1625 Eleventh Avenue, Helena, Montana 59620	
SPECTRUM ENGINEERING Mining and Civil Engineers 1413 4th Avenue North Billings, Montana 59101 Phone: 406-259-2412	
DATE: 1993 DRAWN BY: APPROVED BY: REVIEWERS: NO. DATE BY:	SHEET NO. 1 of 1





**1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT  
PHOTO DESCRIPTIONS**

<b><u>ASSIGNED NUMBER</u></b>	<b><u>DATE TAKEN</u></b>	<b><u>SUBJECT OR COMMENTS</u></b>
WADE COAL FIRE #1		
1	01-25-93	Aerial view of coulee containing Wade Coal Fire.
2	10-19-93	Pre-construction of coal fire disposal pit area looking north.
3	10-19-93	John Deere JD755 stripping topsoil from disposal pit looking east.
4	10-19-93	Disposal pit in progress looking north-northwest.
5	10-19-93	Watering down first layer of burning coal looking east.
6	10-19-93	Watering down burning coal in disposal pit.
7	10-19-93	Spreading fill over coal pit looking northwest.
8	11-02-93	Removing road in coulee looking northwest.
9	11-02-93	Spreading topsoil over expanded coal pit looking northwest.
10	10-19-93	Backfill over expanded coal disposal pit.
11	11-02-93	Crimping of reclaimed coal fire disposal pit.
12	11-03-93	Post-construction view of coal fire disposal pit.
13	11-03-93	Post-construction view of coal fire disposal pit.
14	11-03-93	Coal fire disposal pit finished.
15	11-02-93	Cleaning stream bed looking east.
16	10-19-93	Re-established stream bed and reclaimed coal fire disposal pit.
17	11-02-93	Backfilling of second coal fire disposal pit near the top of hill.
18	11-02-93	Replacing topsoil near top of hill.
19	11-03-93	Seeding backfilled disposal pit near top of the hill.
20	11-03-93	Spreading hay on disposal pit on top of the hill.
21	11-03-93	Crimping the mulch on disposal pit near top of the hill.
22	10-19-93	Southern (lower) disposal pit with burn area in background.



**1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT  
PHOTO DESCRIPTIONS**

<b><u>ASSIGNED NUMBER</u></b>	<b><u>DATE TAKEN</u></b>	<b><u>SUBJECT OR COMMENTS</u></b>
23	10-19-93	Pre-construction of west bank fire looking south.
24	10-19-93	Pre-construction of east bank fire looking east.
25	10-19-93	Excavating west coal seam fire looking west.
26	10-20-93	Excavating west coal seam fire looking northwest.
27	10-19-93	Road building to the west side looking south.
28	10-19-93	View of west bank and road looking south.
29	10-29-93	West bank after backfilling looking south.
30	10-20-93	Backfilling against west bank after 25 loads.
31	10-20-93	Began backfilling on west bank area.
32	10-21-93	Backfilling of west coal bank.
33	11-02-93	Installation of erosion control blanket on west bank.
34	11-03-93	Erosion control blanket on both east and west banks.
35	11-03-93	Overlook of disposal pit and erosion blanket in-place.
36	10-19-93	Pre-construction view of east bank fire area.
37	10-20-93	Starting excavation of east coal bank fire.
38	10-21-93	North edge of east bank fire zone.
39	10-21-93	Coal vein on east bank after some excavation looking north.
40	10-20-93	View of east bank fire after 25 loads taken out looking northeast.
41	10-29-93	East bank fire zone after fire dug out looking northeast.
42	10-29-93	View of east bank looking east.
43	10-20-93	East bank coal prior to backfilling looking east.
44	11-01-93	North end of east bank with fire out looking south.
45	10-20-93	Loader with fill material.
46	10-29-93	Start of east bank backfilling operation looking southeast.
47	10-29-93	Filling northern edge of the east bank looking south.





**1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT  
PHOTO DESCRIPTIONS**

<u>ASSIGNED NUMBER</u>	<u>DATE TAKEN</u>	<u>SUBJECT OR COMMENTS</u>
48	10-29-93	Filling northern edge of the east bank.
49	11-01-93	Filling northern edge of the east bank.
50	11-01-93	Erosion control blankets prior to installation.
51	11-03-93	Installation of erosion control blanket on northern end of east side.
52	11-03-93	Finished job on both east and west sides of coulee looking north.
53	11-03-93	Completed job looking south across disposal pit at coulee.
54	11-03-93	Close-up of blanket and straw bales in-place.

**AYERS SHAFT**

55	03-31-93	Aerial view of coulee and Ayers shaft looking northeast.
56	03-31-93	Pre-construction of shaft and debris looking southwest.
57	11-04-93	View looking northwest down coulee at debris and shaft.
58	11-04-93	Backhoe starting to backfill shaft looking west.
59	11-04-93	Dumping material into the shaft looking southeast.
60	11-04-93	View after shaft filled and topsoil placed over hole.
61	11-04-93	Shaft and borrow area seeded, fertilized, and mulched.

**SQUARE DEAL MINE**

62	10-27-93	View of assumed air shaft looking northeast.
63	10-27-93	Excavation of potential air shaft.
64	10-27-93	Air shaft after backfilling.
65	10-27-93	Air shaft after revegetation.
66	10-27-93	Pre-construction view of 2nd potential air shaft looking west.
67	10-27-93	Excavation of 2nd potential air shaft.
68	10-27-93	Air shaft after backfilling.



**1993 WADE COAL FIRE #1/AYERS SHAFT/BLM ADIT PROJECT  
PHOTO DESCRIPTIONS**

<u>ASSIGNED NUMBER</u>	<u>DATE TAKEN</u>	<u>SUBJECT OR COMMENTS</u>
69	10-27-93	View of both air shafts after revegetation.
70	10-27-93	Excavation of hole in front of old brick building looking east.
71	10-28-93	Hole in front of old brick building after backfilling.
72	10-28-93	Hole in front of old brick building after revegetation.
73	10-28-93	Pre-construction of burial hole for old mine waste garbage.
74	10-28-93	Debris disposal.
75	10-28-93	Excavating burial pit for debris looking west.
76	10-28-93	Disposal pit after backfilling looking northeast.
77	10-28-93	Disposal pit being revegetated.
78	10-28-93	Disposal pit after revegetation.





**1993 WADE COAL FIRE #1,  
AYERS SHAFT,  
BLM ADIT PROJECT**

**WADE COAL FIRE #1 SITE  
T6N, R28E, SEC. 9 & 10  
MUSSELSHELL COUNTY**











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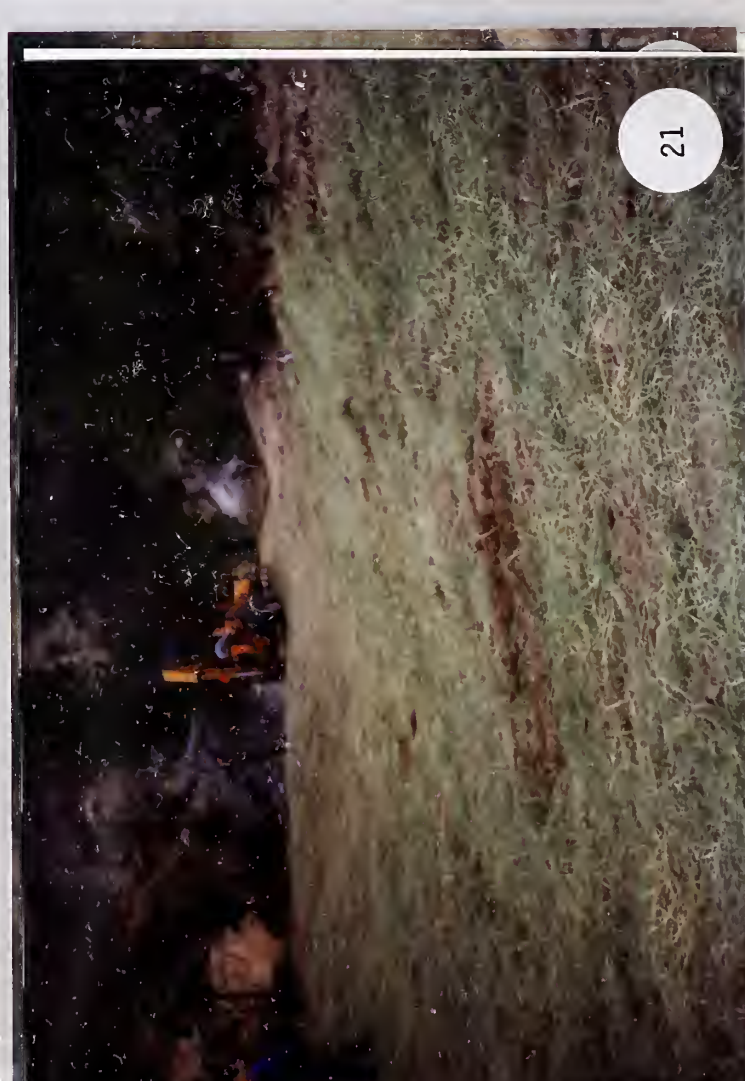
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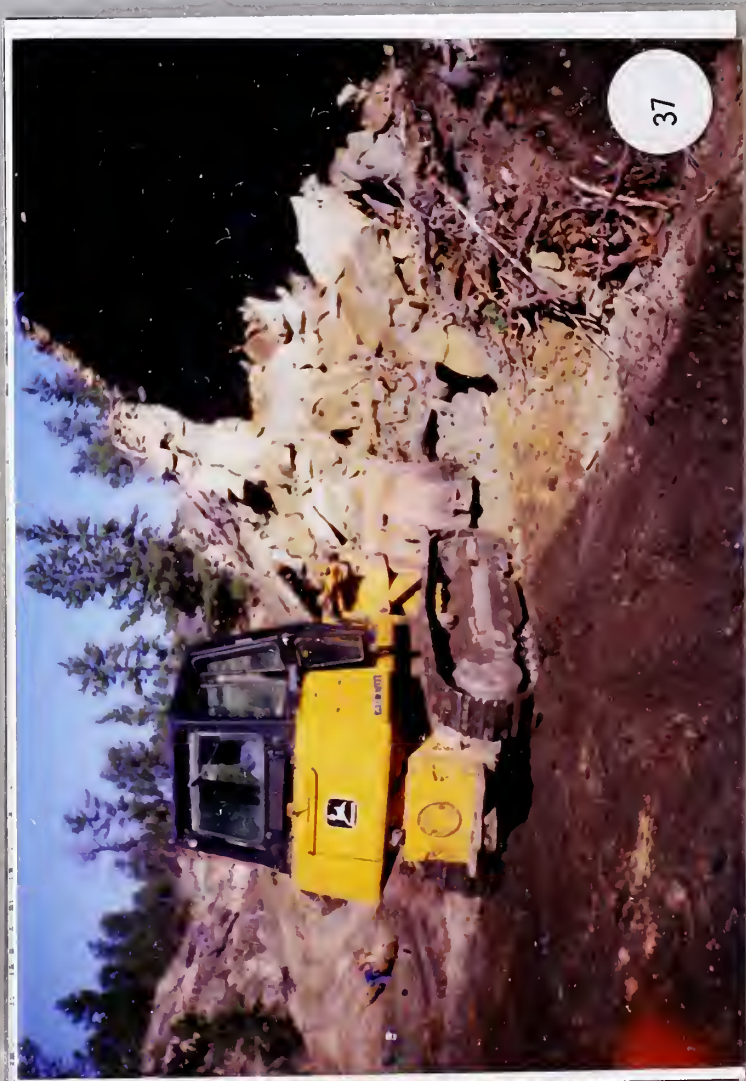




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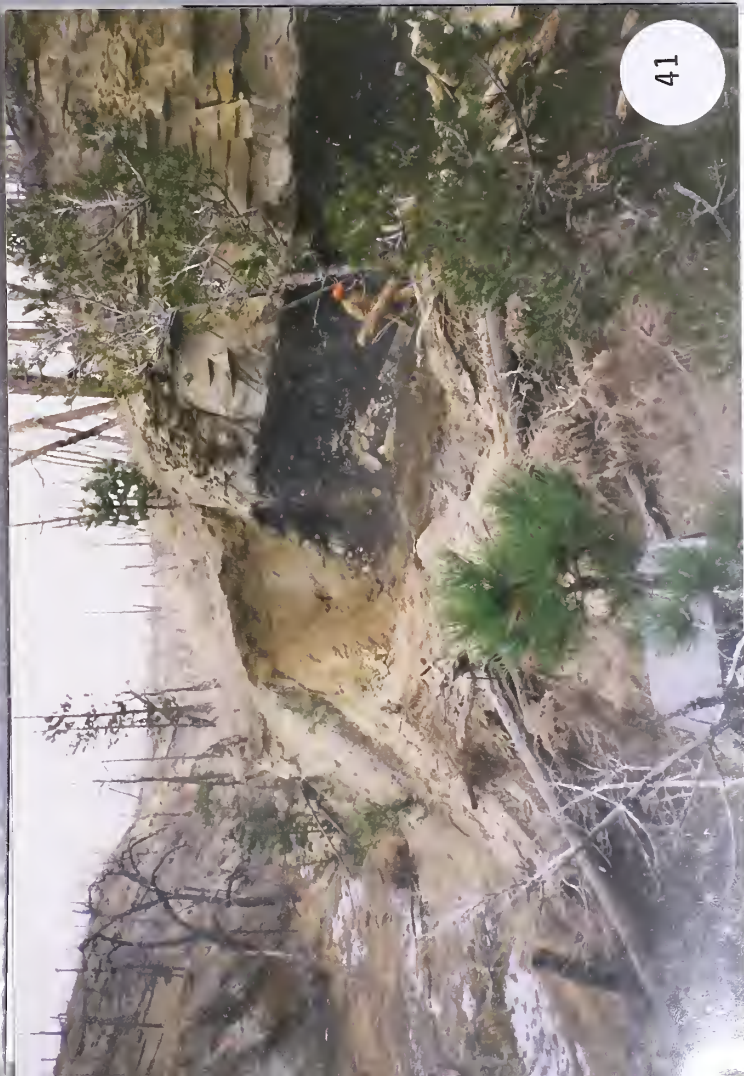




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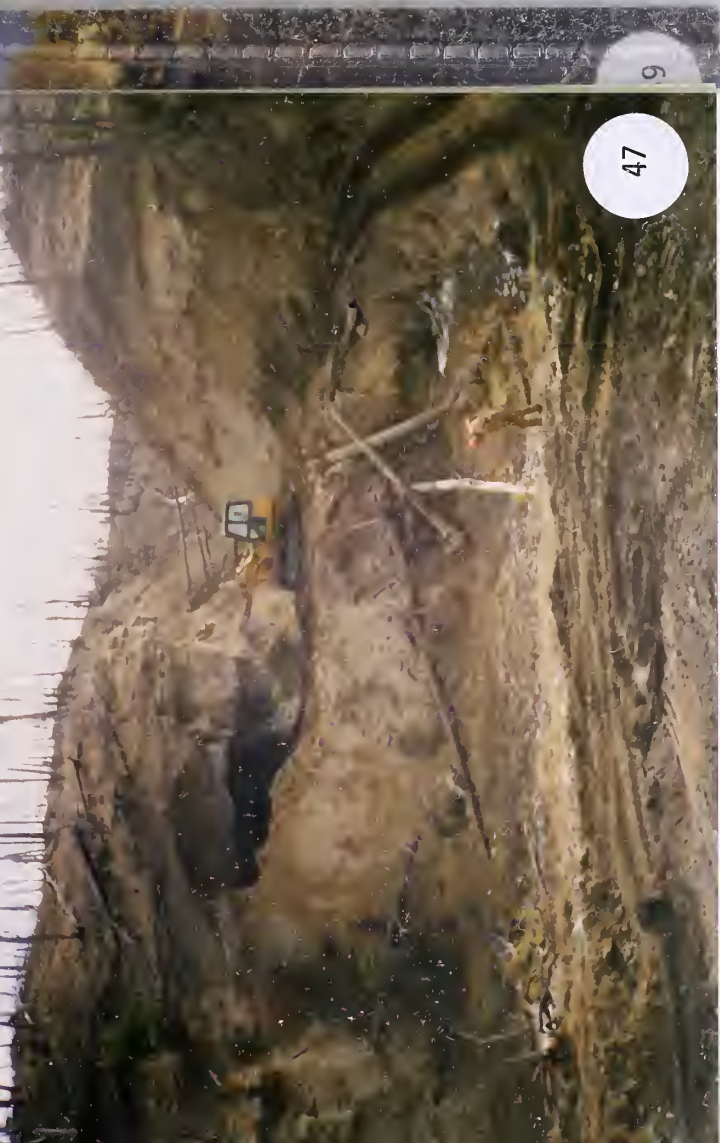


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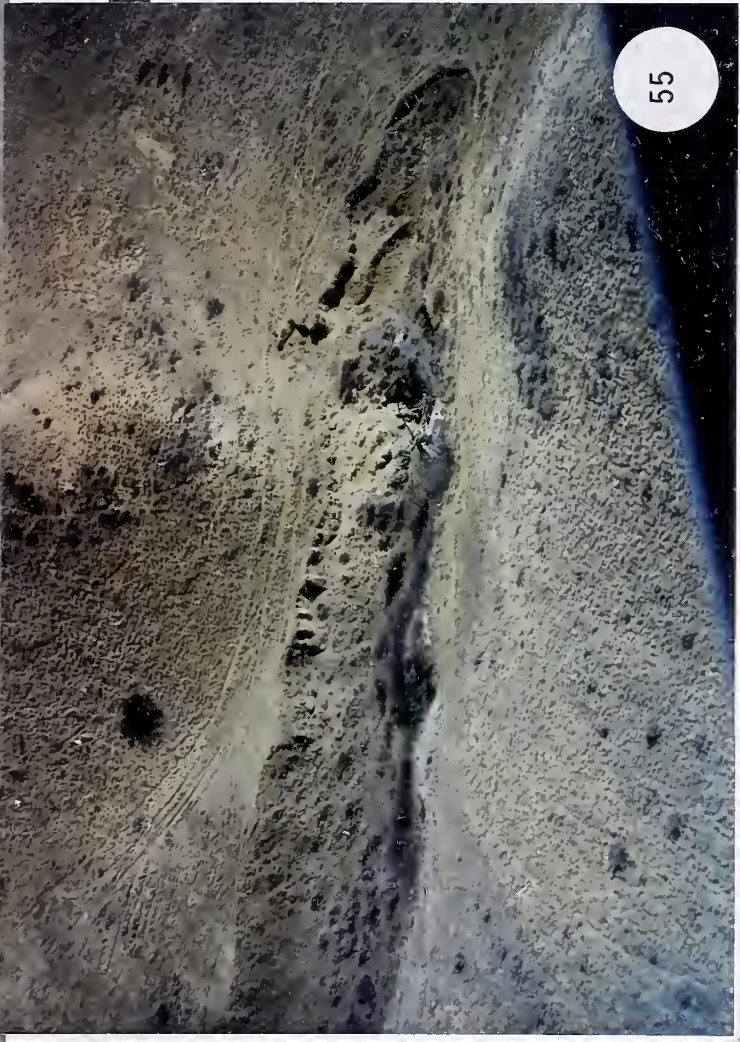




**AYERS MINE SITE  
T15N, R22E, SEC. 10 & 15  
FERGUS COUNTY**



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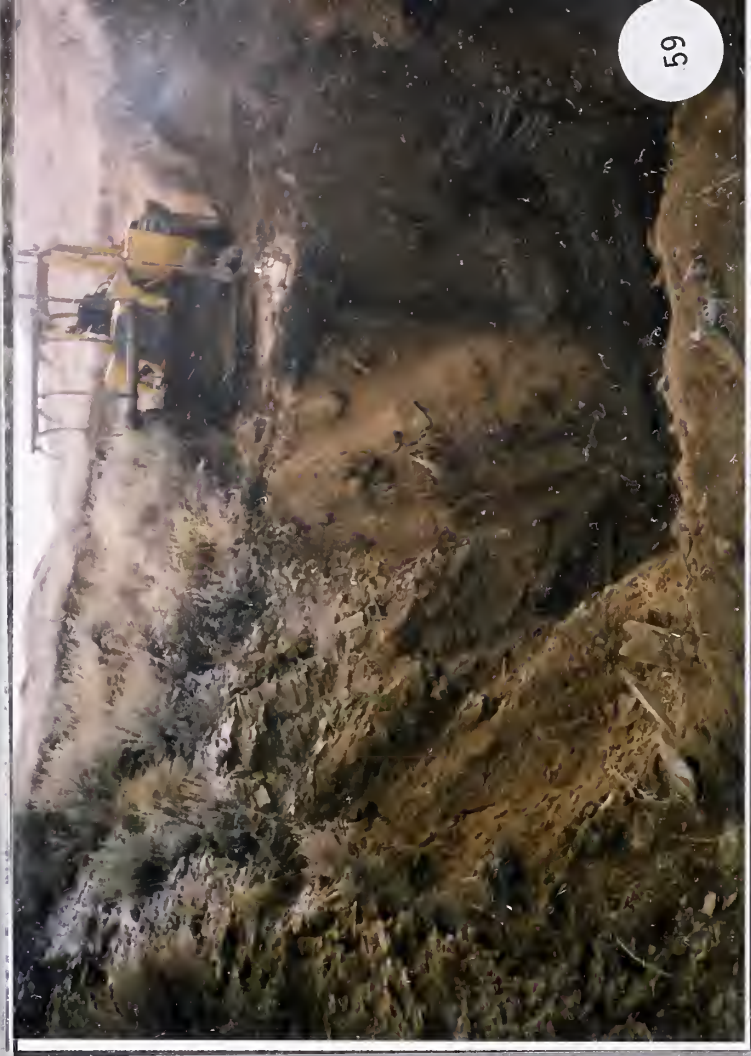


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**SQUARE DEAL SITE  
T8N, R25E, SEC. 16  
MUSSELSHELL COUNTY**

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74



73







☐ Dead Roundup  
 N. Avery pit 100 ft E. of  
 bluff, creek, trail, Hwy  
 10-3

1993 WADE COAL FIRE #1 / AYERS SHAFT  
 AND SQUARE DEAL PROJECT  
 DSL-AMRB 93-006  
 Before, during and after construction photographs.  
 Photo descriptions are found in the final report.  
 Construction period: 10/19/93-11/04/93



☐ Dead Roundup  
 N. Hay Scarp pit  
 9-36 10-2893

1993 WADE COAL FIRE #1 / AYERS SHAFT  
 AND SQUARE DEAL PROJECT  
 DSL-AMRB 93-006  
 Before, during and after construction photographs.  
 Photo descriptions are found in the final report.  
 Construction period: 10/19/93-11/04/93





